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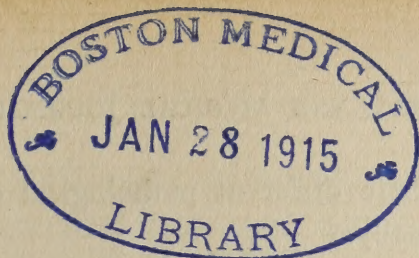
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The Differential Diagnosis of Conditions Causing Increased Intracranial Pressure.

By CARL D. CAMP, M. D., Clinical Professor of Diseases of the Nervous System in the University of Michigan, Ann Arbor.

To some extent variations in the pressure within the intracranial cavity are physiological but just to what degree these variations may exist within physiological limits is still problematical. Ordinarily, we speak of the increased pressure as pathological only when it gives rise to those symptoms or signs which we have, by experience, come to associate with such an increase. In infancy, before the cranial bones are fully ossified or the fontanelles closed, this pressure will give rise to changes in the size and shape of the head, enlargement of the fontanelles, opening of the sutures, etc. In more mature individuals, when this enlargement cannot take place other symptoms commonly develop, such as: headache, vertigo, feeling of fulness in the head, disturbance of consciousness, epileptiform attacks, nausea and vomiting, slowness of the pulse and papillo-edema, or choked disc. At times, in infants, the same symptoms may develop if the rate of increase in pressure is greater than can be overcome by the rate of enlargement of the skull.

The symptoms enumerated above occur as the result of the general increase in intracranial pressure but usually give us by themselves, no clue to the cause of the increase; furthermore, by their intensity, they indicate the rate of increase rather than an absolute amount.

The difficult problem is to determine what pathological conditions may be responsible for increased intracranial pressure

Address before the Section on Mental and Nervous Diseases of the Ohio State Medical Association Meeting at Cleveland, May, 1911.

The signs of increased intracranial pressure that are present sometimes in uremia may be due to the high blood pressure or to serous transudation into the meninges. Many of the symptoms occurring in uremic patients are, in some cases, relieved by the reduction of the pressure by drawing off fluid by lumbar puncture. The diagnosis depends upon the presence of the signs of nephritis, the albuminuric retinitis accompanying the choked disc and the absence of definite signs of intracranial disease. The presence of an increased amount of urea in the cerebrospinal fluid may aid in the diagnosis of uremia as pointed out by Comba, Widai and Froin, Mallard and Froment, and others. The following case will illustrate the difficulties attending the diagnosis of such a condition:

Mrs. M., aged 50, housewife, complained of headache and general weakness. Her trouble began two or three years before her admission to the hospital but the headache became more severe six months before her admission. She had never had any dizziness or vomiting and there was no history of traumatism to the head. Examination showed: Mental retardation. There was a tumor mass over the sternum. There was no paralysis anywhere and no sensory change. The tendon reflexes were all prompt and there was no Babinski. The blood examination was negative. The urine examination showed no albumin but some granular casts. The ophthalmoscopic examination showed a choked disc of four diopters in one eye and five in the other but along with this, a typical albuminuric retinitis. The patient improved under treatment for nephritis and the intracranial pressure was reduced. The findings of the high degree of choked disc, in connection with the other signs of increased intracranial pressure, and the tumor on the sternum suggested very strongly the diagnosis of brain tumor, but the albuminuric retinitis and the casts in the urine, and the fact that the patient improved under treatment, makes it more probably a case of uremia.

According to Hoppe (*Trans. Amer. Neurolog. Assn.*, 1906, p. 148) and others, chlorosis and myxedema may give rise to the symptoms of increased intracranial pressure. In the latter the symptoms were made to disappear by the administration of thyroid extract. And de Schweinitz (*Annals of Ophthalmology*, April, 1911) has observed a papillo-edema occurring in ordinary anemia which he attributes to increased intracranial pressure.

The pathological conditions arising within the cranial cavity

that give rise to an increased intracranial pressure are chiefly: internal hydrocephalus, meningitis, encephalitis, and cerebritis, brain abscess and brain tumor.

Internal hydrocephalus occurring congenitally or in early infancy is not difficult of recognition; the characteristic size and shape of the head suggest at once the diagnosis. The diagnosis of the cause of the condition is, however, not so easy. The closure of the foramen of Magendie by a meningitis, causing hydrocephalus has been observed by Bramwell, Neurath, Ingham and others (*Jour. Amer. Med. Assn.*, Vol. 53, p. 1286); closure of the aqueduct of Sylvius either through inflammatory products, as in the cases reported by Ludlum (*New York Med. Jour.*, Dec. 26, 1908); or by proliferation of the neuroglia, as in the cases reported by Spiller and Allen, will also cause internal hydrocephalus. The differential diagnosis of these two conditions is not usually made antemortem but the finding of increased cell and albumin content in the cerebrospinal fluid points to the former condition. A unilateral hydrocephalus due to closure of the foramen of Munro has been reported by Spiller (*Amer. Jour. Med. Scien.*, July, 1902). I have observed a case of hydrocephalus involving only the posterior horn of one lateral ventricle. The necropsy showed that it was due to a small glioma in the thalamic region which blocked the exit of the spinal fluid from that part of the ventricular system, while it continued to be secreted there by the choroid plexus. Owing to the fact that the patient had recently had a mastoid infection and the rapid development of the pressure symptoms, the diagnosis of brain abscess was considered and a brain puncture made, drawing off the cerebrospinal fluid from the ventricle, about 60 c.c., with almost complete, temporary relief of the symptoms; however, the symptoms returned as the cavity refilled and the patient eventually died after having obtained almost complete relief three times, by punctures.

Internal hydrocephalus is frequently found in association with syringomyelia; according to Hinsdale, in about 10% of all cases. Rhein (*Jour. Amer. Med. Assn.*, Vol. 53, p. 1933) reports a case of this kind with marked cerebellar symptoms and Spiller has also called attention to the occurrence of cerebellar symptoms in hydrocephalus (*Amer. Jour. Med. Scien.*, 1902, p. 44). These cases are difficult to differentiate from cerebellar

tumor. If the cerebellar tumor is in a lateral lobe, lying on the sound side will increase the vertigo, according to Schmidt. Adiadococinesia and hemiasynergia are more distinctive of cerebellar tumor.

The various forms of meningitis usually give rise to increased intracranial pressure. Inflammation of the dura—internal hemorrhagic pachymeningitis—may be suspected from the history of trauma or alcoholism or as a complication of senile dementia or paresis, although it sometimes occurs following infectious diseases; also the step-like progress of symptoms aids the diagnosis. If the condition is suspected the chief difficulty will usually come in the diagnosis from brain tumor. In either case an operation, at least for decompression, is indicated and often the diagnosis can be made only at operation.

The symptoms of purulent leptomeningitis are usually so distinctive that the diagnosis is not difficult. The presence of fever, leukocytosis, etc., rule out the non-purulent affections: such as, brain tumor or hydrocephalus; while the absence of localizing signs and the presence of multiple cranial nerve involvement, rigidity of the neck, Kernig's sign, etc., differentiate it from brain abscess. A lumbar puncture will not only confirm the diagnosis but also indicate the nature of the infection. Tuberculous meningitis is distinguished from the other forms by lower temperature, no leukocytosis, slower onset and longer course. The diagnosis is confirmed by finding lymphocytes in the cerebrospinal fluid, instead of leukocytes as in purulent meningitis, and the presence of the tubercle bacilli in the cerebrospinal fluid. Besides the usual form of the tuberculous meningitis, we may have the miliary form and the tuberculosis "en plaque" of the meninges. The former is usually part of a general miliary tuberculosis and the meningeal symptoms may be only slight and are obscured by the general condition; tubercles on the choroid are suggestive of it. The so-called meningitis "en plaque" is a localized form and rather rare. It is usually diagnosed as brain tumor which, in fact, it is, being a tuberculoma of the meninges. The occurrence of the brain tumor syndrome in a tuberculous individual, reacting to tuberculin, or giving the Calmette or von Pirquet reaction, may suggest the diagnosis.

Syphilitic meningitis may occur in either the secondary or tertiary stages of the disease. It is rarely accompanied by fever. The history of syphilis, the early involvement of the nervous

tissues themselves giving rise to paralysis or other disturbance of function, and the presence of the Wassermann reaction especially if present in the cerebrospinal fluid, permits the diagnosis to be made.

Serous meningitis is a condition very difficult of diagnosis. Most frequently the error is in mistaking it for brain tumor especially tumor of the cerebellum as there are often some cerebellar symptoms—vertigo, ataxia, nystagmus, etc. The course of the disease and the etiology are the chief points of value in the differential diagnosis. With regard to the latter, trauma and sunstroke are common factors. MacPherson, according to Anton, reported a case of infectious phlebitis with thrombus formation in the venous sinuses (*Flatau's Handbuch path. anat. d. Nerven-sys.*) and Gowers, also, mentions obstruction of the veins of Galen, preventing a return of blood from the intraventricular veins, as a cause of internal hydrocephalus and serous meningitis. Spielmeyer reports such a case followed by a purulent meningitis. A case similar to Spielmeyer's has come under my observation in a young man who had a mastoid operation and the sigmoid sinus obliterated, for an infection. A week later he had headache and choked disc of five diopters. There were some cerebellar symptoms, such as nystagmus, etc., but no localizing cerebellar symptoms. The temperature, pulse and respiration were normal and lumbar puncture showed normal cerebrospinal fluid. A diagnosis of serous meningitis was made. About seven weeks later he had a sudden chill, began having fever, extra-ocular paralysis, much more severe headache, Kernig's sign and leukocytosis, signs indicating purulent meningitis, which was found at postmortem. I believe that the blocking of the sigmoid sinus caused a venous stasis in the veins of Galen and a transudation serous meningitis, then later the infection reached the meninges after traveling slowly up within the sinus until it reached a point where the infection would escape into the meninges. In this case it was necessary to make a differential diagnosis from cerebral abscess, which seemed possible from the history of the case. The correct diagnosis was based chiefly on the absence of localizing signs and the chemical and cytological findings in the cerebrospinal fluid.

Polioencephalitis superior of Wernicke may give rise to symptoms of increased intracranial pressure as may also the

polioencephalitis inferior, in which the medulla particularly is involved. These diseases are rare. Krumbhaar (*Univ. of Penna. Med. Bull.*, May, 1908) reports a case and gives the literature. The diagnosis depends upon the finding of symptoms of increased intracranial pressure, combined with general symptoms of fever, rapid pulse, leukocytosis, etc., and paralysis in the distribution of the various cranial nerves, without marked evidence of meningeal irritation. In the type "superior," the ocular nerves are chiefly affected; in the type "inferior," those nerves having their nuclei of origin in the medulla. Cortical encephalitis may give rise to somewhat similar symptoms but the evidence of involvement of cranial nerve nuclei will probably be absent, whereas there may be signs of cortical irritation; such as, Jacksonian epileptic attacks, aphasia, etc.

Brain abscess is a condition, the diagnosis of which is as important as it may be difficult. In general it depends upon the finding of evidence of a purulent process in the body together with the signs of a focal lesion in the brain. The history of the case is of great importance but too much reliance placed upon it may lead to grave error. For instance, in the case of brain tumor causing a localized internal hydrocephalus, referred to above, the patient had had a mastoid operation a short time before, and had purulent frontal sinus disease at the time the signs of a rapidly increasing intracranial lesion appeared. The diagnosis of abscess would immediately suggest itself from the history but the pathological condition in the brain was a non-infectious one. Also in the case of serous meningitis referred to before, the symptoms followed and were apparently in connection with a purulent process in the mastoid. On the other hand, abscesses may develop without purulent processes elsewhere in the body, usually as the result of trauma. I can refer briefly to three such cases: 1. A child, aged about one year, fell, striking his head. He was not apparently seriously hurt. The next day he began having Jacksonian epileptic attacks and developed a right hemiplegia, some rise in temperature and pulse rate. The convulsions ceased in a few days and the paralysis gradually grew less. About four weeks later there was again a rise in temperature, the hemiplegia becoming more marked, and the patient died in a convulsion. The condition was a traumatic encephalitis followed by brain abscess in the motor region.

2. A young man playing football was kicked in the forehead. He was dazed for a short time but recovered except for a more or less continuous headache. About two weeks later he gradually became confused and somewhat stuporous, with increasing headache and vomiting and slight fever. He was brought to the hospital four weeks after the accident in a stuporous condition but responded to questions and there was no aphasia. There was a slight, right hemiparesis and weakness in outward movement of both eyeballs but otherwise the examination was negative. Operation was attempted but he died before it could be completed. At necropsy there was found a large abscess in the left frontal lobe. 3. A girl, aged six years, while playing, fell on the point of a darning needle which penetrated into the orbit about four inches and broke in two places. A piece of the needle two inches in length was immediately removed. A few weeks later pus collected at the inner corner of the orbit and it was incised and a second, two inch piece of the needle was removed. She then remained well for eight months, when she began having headaches in the left frontal region and appeared stupid. There were no other symptoms. On her admission to the hospital at this time, she had the above symptoms, a slight weakness at the right corner of the mouth and optic neuritis on the left side. The left frontal bone was trephined and the dura opened but no abscess found. She was slightly improved for a few days and then grew worse again. The wound was reopened. There was no abscess on the surface but a small incision opened an abscess discharging at least three ounces of pus. Immediately the patient became better and remained so for over six weeks, the wound in the head being permitted to heal, when the former symptoms returned. The wound was reopened and another abscess, apparently separate from the first, was opened and drained; after that the patient made a complete and uneventful recovery.

In the differential diagnosis of brain abscess from meningitis we can rely to some extent on the clinical signs; the presence of rigidity of the neck, Kernig's sign and other evidences of meningeal irritation in the latter and the localizing signs in the former. The chemical and cytological examination of the spinal fluid is, however, a more reliable means of differentiation: in abscess the fluid is clear, is usually without increase in cellular

elements but contains an increased amount of protein; in meningitis the fluid is usually cloudy and contains a marked increase in cells as well as protein. In serous meningitis the cerebrospinal fluid is clear and without increase of either cells or protein. It should be remembered that a meningitis may complicate the abscess and thus change the findings in the cerebrospinal fluid as well as the clinical symptoms. In these cases the prognosis is very bad and operative treatment hardly worth while.

The history of the case, the more rapid development of the symptoms, fever, and leukocytosis are usually relied upon to differentiate brain abscess from brain tumor. As regards the first, it should be remembered that a history of trauma may be obtained in either case and a history of purulent affection elsewhere in the body may be misleading. Abscess may have a long latent period which simulates the slow growth of a tumor. Spiller (*Univ. of Penna. Med. Bull.*, Oct., 1906) says that "the temperature and pulse are likely to be subnormal in abscess, but they may be normal or even above normal," so that these signs cannot be relied upon. In well encapsulated abscess, the leukocytosis may be absent. The differential diagnosis, therefore, usually requires a judgment with due regard to the history and all the signs, no one sign being pathognomonic.

I have already referred to the diagnosis of tumor of the brain from the conditions above mentioned and it only remains to summarize our observations on this point. The diagnosis of tumor chiefly depends upon the progressive development of symptoms indicating a focal brain lesion. If situated in the motor region, these will consist of a slowly developing hemiplegia. It has been said that this is pathognomonic of brain tumor but Spiller has called attention to cases in which a slowly developing hemiplegia was due to other conditions than tumor. The presence of all the signs of increased intracranial pressure is not necessary to a diagnosis of brain tumor; choked disc, for instance, may be absent for a long time. Also the symptoms are not invariably progressive. Many times there are periods of temporary improvement, sometimes even permanent improvement, as in cases of tubercles that have retrogressed. Lipomata and psammomata may cease to grow and stop giving rise to any symptoms. The examination of the cerebrospinal fluid is usually negative in brain tumor and hence may afford some evidence

of value in a negative way but there have been cases reported with increased protein content in the cerebrospinal fluid. There have also been cases reported in which the nature of a brain tumor has been diagnosed by finding the tumor cells in the cerebrospinal fluid but these are rare. Lumbar puncture is somewhat dangerous in brain tumor, as sudden death has been reported as following it. The diagnosis of brain tumor in patients who have syphilis may be difficult because of the tendency to regard cranial symptoms as due to cerebral syphilis in such cases. Nonne (*Neurolog. Centralbl.*, 1910) has suggested that in such cases the Wassermann reaction, though present in the blood, will be absent in the cerebrospinal fluid. He reports several cases in which he has made a diagnosis of brain tumor in this way even though the patients had syphilis. When there is syphilis of the nervous system the Wassermann reaction will be present in the cerebrospinal fluid as well as in the blood.

We are justified in concluding that a large variety of pathological conditions may give rise to the symptoms of increased intracranial pressure and that, in order to make a correct diagnosis of these conditions, we must take into consideration all the possibilities in each case and utilize every means of clinical investigation. The chemical and cytological examination of the cerebrospinal fluid is a very important aid in arriving at a correct diagnosis.

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The Social and Economic Value of Medical Charities.

By JAMES F. JACKSON, Director of the Associated Charities, Late General Superintendent of Charities and Correction, Cleveland, Ohio.

When I think of medical charities I recall William L. Lincoln, the beloved country doctor of my boyhood town. He was of the flower of New England chivalry, sound in body, clear in brain, pure in heart; with a knowledge of medicine and with a knowledge of men which made him a great social force in that community.

It seemed to make little difference to him whether or not the patients could pay their bills. Where there was a babe to be

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born, where smallpox was ravaging a household, where a father had nearly severed his foot with an axe or the mother was in serious danger from inflammation of the lungs, as they then termed pneumonia, there he drove with his little black case of medicine, his shrewd instinct for diagnosis and the kindly manner which gave to the patient instant assurance that all would be well.

For a generation he traversed those rugged hills and the wind-swept prairies to minister to any who suffered in the crude home of the pioneer. Many a winter's night have I heard this belated messenger of health hallooing from the opposite icebound shore for the drowsy ferrymen to carry him and his rig across the swift, dark Mississippi, whose dampness added to the sub-zero cold.

He presided over no hospital, he was professor in no great school; but wherever he went there was our medical charity, God's nobleman, Yea, a prince of the house and lineage of David, our exemplar of the medical profession. Nor has the type passed, for in whatever city I have dwelt, there I have known men like him. But then as now there were self-seekers and quacks, and let me say that to my mind this Academy has to its credit no finer social service than the locating and driving out such practitioners, the opposite of this, our medical mentor.

One hundred years ago three per cent of our population lived in cities; now over fifty per cent live there. The fact of these congestions of population and the many causes of ignorance and poverty within cities, require the best use of all facilities to conserve life and to do for the poor what they cannot do for themselves.

This is a day of organization and specialization. Times are changed from the village conditions of our grandsires when the tallow dip, the stagecoach and spinning wheel were the best to be had in lighting, transportation and manufacture. But the change to the electric light, the century limited and the great factory is not more marked than the development of the physician's facilities and the specialization essential to the best results obtainable by him.

The transition may be illustrated by the life of Cleveland's late Dr. A. G. Hart, a type of the Civil War Army Surgeon who rendered rare service with few facilities, proving what the right

sort of doctor can do. Some of you have heard him tell of amputating a wagon load of arms and legs without the use of an anesthetic. But the first concern even of those men was to secure a hospital and an equipment as well as nursing and lay support. So also the importance of hospital facilities is shown by the experience of the resourceful, the famous Dr. Grenfell, who went to Labrador with the idea of using his medical skill to heal isolated cases of disease, but who found it necessary to organize and equip a series of hospitals along the coast of 1,000 miles. All these facts express the personal experience of each of you physicians which makes clear that for the conservation of the physician's time and for the conservation of human life an equipment and trained assistance are as necessary to meet city conditions as is the physician himself.

"The physician, his opportunity, his responsibility and his worth," might be another statement of the title of this paper. Not that the doctor is the "whole thing" in medical charities, for there must be millions in buildings and equipment, other millions for annual maintenance, and the nurse, clear headed, swift footed and discreet to execute his orders and to acquire data upon which he will base his further decisions. Also there is the lay social worker who is now indispensable to the success of modern medical charities.

The sum of these contributing factors has grown and will grow as people and the doctor realize their value. Unsupported the doctor can in a large degree and in an acceptable manner extend medical charity; whereas hospitals and dispensaries, trained nurses and equally trained social workers cannot extend medical charity without him.

Even though the doctor can somehow get on alone, society cannot afford to have him; the sick poor cannot afford to have him. Moreover, the medical profession, for its own sake, cannot afford to have the doctor act alone without co-operation or consultation with the other social agencies which would enable him to give a complete and effective treatment of his case, even as he does not attempt to act alone in his own profession. For instance, a friend of mine recently went to a hospital for an operation. The principals in her attendance were: the surgeon to perform the operation, the family physician who recommended the operation, another physician who had previously attended and

knew the patient, the bacteriologist, the physician who administers the anesthetic, the house surgeon who directs action when my friend's physician and surgeon are present, the nurses who carry out the doctors' orders, all co-operate to give complete treatment. Thus in medical practice you deal completely and economically with the sick patient.

When a person's bodily functions do not operate normally you say that he is physically sick. Even so when a person does not function normally with society, he is socially sick. Physical illness may be a factor in the social sickness. Medical terminology is so well understood that social workers dealing with the socially sick borrow your terminology and speak of social sickness, diagnosis, treatment, etc. Now in dealing with social diseases there should be applied identically the same principles of division of labor and the same plan of consultation and co-operation with those who can contribute to the welfare of the one socially sick. When it happens that physical sickness is a factor in social sickness causing dependence, then the physician treating the socially sick needs from every viewpoint to consult and co-operate as he does in dealing with one who is only physically sick.

With you I insist that the doctor needs and should have the best facilities and support that can be afforded. Thus, as shown above, it comes about that the physician is dependent upon others if the great responsibilities assigned to medical charities are to be met in any city. The responsibility resting primarily upon the medical charities is of the first order. It is nothing less than the preservation of the community's health by the prevention of disease and the recovery from the blighting effects of disease. The profession is beginning to treat disease socially and not individually; not simply the case of typhoid but the pure water supply is considered; not simply a sick baby but infant mortality, including milk supply; not a single case of consumption but its causes and the means of its transmission are considered.

Medical charities in the department of public health, hospitals, dispensaries, district physicians and visiting nurses are mainly incidents of city life and naturally the demand for their ministrations increases in greater ratio than does the population, because the city, although it may not produce many new forms of disease, multiplies their ravages. It is the congenial home of disease germs which swarm in the congested tenements, lurk on

the rotary towel, the unfumigated street car and the neglected street. Cities surely will become greater and I fear also more congested and thus more the home of disease.

The volume of medical charities even now exceeds that of any other form of charity. Their importance is measured only by the value of life itself, because life and health are the greatest asset of any city. What is more inspiring than a million people assembled in a great human beehive, and yet what is more dangerous than such an aggregation should it become infected with the virus of smallpox, typhoid or other such disease? Medical activities are the salvation in the physical as the church is the salvation in the moral realm. That aggregation of virtue and vice, wealth and poverty, knowledge and ignorance, which we call the city, is the dominant fact of this age. Can a greater tribute be paid the medical charities than to proclaim them essential to the very existence of the dominant fact of the age?

I am quite sure that this tribute is deserved. I am not so sure that this is the presence in which it should be proclaimed, for whatever may be the physician's professional peculiarities no one can charge him with failure to appreciate the importance of his professional requirements. Has the city the right to issue bonds? The physician is on hand with imperative demands that will consume the entire issue and, to hear him talk, one is almost inclined to believe that such little matters as lights and streets, harbors and bridges are not to be considered. When a city's maintenance is considered it is much the same. And I doubt if the entire private donations of Cleveland or any other big city exceed the amounts wanted for its hospitals and other medical charities. The bigger they get, the larger are their unfilled wants. To sum up the desires of the medical charities one would assume that they want the earth with a fence around it and want it now.

You notice I said that was the doctor's professional estimate of his requirements. Personally, he is rather a modest, often a retiring individual. I have studied to discover why a man who must be thoughtful and kindly to succeed, and who in the practice of his profession is self-forgetful, not seldom at the expense of his own health and life, why this sort of man should possess the aforesaid avaricious traits for the benefit of activities in which he is interested. I believe the explanation is perfectly

natural. When the physician in private practice has diagnosed a case, he has command of father's purse, mother's attention and sister's time; the entire resources of the family are at his disposal for recovery. But not all the resources of money and time are required. Though his requirements are met in the patient's behalf, on the average they consume little of the available resources. There is still provision for all, shelter, food, clothing and life's accessories, very much as if there were no illness.

The health of the poor is no more important than it that of the self-supporting, and those who provide for the health of the poor need to remember that the poor also require food, fuel, clothing and life's accessories else the very medical charity itself is extended in vain. These necessities must be provided from the general fund out of which the medical needs must be supplied. In other words, physicians interested in medical charities should not consider themselves in the light of the family doctor on his brief call during which time he has command of all resources but he might better consider himself as a member of the family in whose budget the requirements for the invalid's recovery take their place with the imperative demands for his other needs and for those of the others of the family.

It is quite as important that inmates of asylums and orphanages or needy families in their homes do not die of hunger as it is that they do not die of diphtheria. Quite as important that other charities have funds to keep folks well as that medical charities have funds to recover them their health. What shall it profit a man if his appendix be successfully removed only to permit him to die of hunger or cold, or what shall a man give for a well body if he has neither work, food nor shelter?

I wonder if many people realize that the growing importance accorded by your profession to preventive medical practice is matched by the importance accorded to the prevention of social diseases of which poverty is one expression. Sickness is a cause of poverty but by no means the only one. The doctor needs to co-operate with other workers among the poor even as the other workers need to co-operate with the doctor. Co-operation is always reciprocal; a person cannot co-operate all by himself any more than he can quarrel by himself.

The recovery of health and its maintenance are not purely questions for the doctor. A person requires other material neces-

sities. He requires also comfort and consolation from the friend. Friendship must be developed; it is not a thing which can be delivered in full blossom on call; therefore, the friend to work with the poor when they are sick is the friend who has worked with them when they were well. He who is the recognized friend of the patient can be of the greatest assistance to the physician and, as a rule, is more than eager to consult with him concerning the welfare of their common problem.

The spirit of the country doctor plus modern conditions produce the medical charities to meet the modern problems of disease. The medical charities of Cleveland are unusually well organized to meet those problems and I doubt if any other city is more promising in their prospective development. By a process of evolution and with the modern tendency to division of labor and service there have developed three kinds of medical charities: that administered in the home, in the dispensary, and in the hospital.

The importance of the hospital is growing and with the division of labor it must further grow but, when all is said and done, the great volume of medical charity must be extended to people living in their homes. Far and away the big feature of that work must be extended by calling at the home rather than by the patient going to the dispensary.

A doctor in my neighborhood was called to the home of a Polish cobbler who thought himself dying of gall stones. The doctor being satisfied as to the real fact advised him to enter a hospital for an operation. As the doctor expected, there were no gall stones; however, there was an ulcerated stomach. The operation was completely successful and now the man is restored to the community and to his business; his wife and little children are saved from a household wreck. This illustrates the economic side of the profession and equally illustrates the social side as affecting the family and the community. From start to finish this was a medical charity because the patient can never make much payment, nothing at all commensurate with the service rendered.

The physician whether he goes personally or as the representative of the municipality has peculiar opportunity for contributing toward the social regeneration of people in distress. The trained social worker is a new factor for whom training

schools and facilities have been provided only within the last few years. It is, therefore, not surprising that neither ministers, lawyers nor physicians realize the aid which may be given them by these social workers, nor do they always realize how to avail themselves of that aid.

In every large city there are one or two large organizations occupying the place filled in Cleveland by the Associated Charities and by the Hebrew Relief Association. When I refer hereafter to the Associated Charities it is understood I do so simply for brevity and include both organizations within my meaning. When a physician meets a family problem that he does not know fully how to solve, the simple way is to call the Associated Charities, giving accurately the name, address and such other essential facts as he may possess. The Associated Charities will promptly cause a diagnosis to be made from the social standpoint, will themselves act and will refer for treatment to the various social specialists, as, for instance, the medical charities, the church or the Humane Society and will gladly co-operate in providing the remedies and in effecting a permanent cure.

Not only is it necessary that there be schools devoted to the training of social workers, but it will be to the advantage of the medical profession if some attention shall be given to social training in the medical college for the doctor's benefit and in the hospital for the benefit of the trained nurse, even as it is necessary that some general idea of medical possibilities be incorporated in the training of the social worker. Each needs to know enough about the other to avail himself of the facilities which the other affords. In other words, each needs to know enough of the other to work with him in the best interest of the unfortunate and of the community.

There is a tendency to feel that mission workers, physicians and visiting nurses who see the poor in their homes are therefore qualified to handle the whole question of poverty. I make bold to say that they are no better qualified in that particular than is the lay social worker for handling the questions of medicine and hygiene. The achievement of the purpose which we are striving to attain, namely the improvement of the condition of the unfortunate, demands that we know one another, have confidence in one another and work together. Of course there will be errors; of course there will be misunderstandings. But no good

has ever come from magnifying differences, the making of a mountain of difference out of a molehill of misunderstanding.

As to the social and economic value of hospitals and dispensaries, little additional need be said except that within the dispensary and within the hospital you are working with people who either are or may have been dealt with by other charities. And it is as impossible that the best results be had unless each organization has regard for and pays attention to other organizations as it would be impossible to succeed unless each member of the staff paid attention to the others in his own institution.

What would have happened to my aforementioned friend who entered the hospital for an operation, had the operating surgeon, the family physician, the bacteriologist, the physician administering the anesthetic and the nurses each worked without any regard to the others? You know what would have happened. Just what did happen the past few years on our home diamond at League Park. Star ball loses the pennant to team play every season. Exactly that same thing is happening every day when the hospitals, the dispensaries and the physicians fail to co-operate with the other charities or the other charities fail to co-operate with the medical. It spells waste and suffering and disaster on every hand.

Now, with the co-operation of all parties, this matter can be absolutely adjusted by the simple use of the Charities Clearing House. Its purpose is simply to enable the various charities or the various factors dealing with the unfortunate to work together for his benefit rather than working separately to his harm. Without taking the time to go into all the details I say boldly that no charity, medical or any other, has a moral right to neglect such opportunity, especially when no harm comes to the co-operating charity and good comes to all concerned.

I realize the imperative need of clinical material but that need can be equitably met and adjusted under a scheme of organization and mutual interest better than by a method of disorganization and distrust.

Wherever distress appears, there must it be met and eliminated if possible, remedied in any event. This should be done at no unnecessary cost to the community, and yet at sufficient cost to insure efficiency. There is not a cent of charity money nor a minute of charity time to waste. The conservation of every

particle is necessary if we are to do our part to effect social readjustment and to relieve the intense conditions of city life. We are all members one of another; if one suffers, all suffer; if one is benefited, all should rejoice.

We are all striving for the improvement of the condition of the individual and the betterment of the community. If we strive to understand one another, if we strive to appreciate one another, these results can be obtained, and the individual will be better, the medical profession will be stronger, and the community will be tremendously advanced in the path of civilization.

Hemorrhagic Infarction of the Adrenals, With Report of a Case.

By ARTHUR W. M. ELLIS, M. B., Late Resident Pathologist of the Lakeside Hospital, Cleveland, Ohio.

(From the Pathological Laboratory of the Lakeside Hospital.)

Although much attention has been paid to infarction of the various other viscera, the occurrence of infarction of the adrenal glands has received but the scantest attention. The purpose of this article is to point out again that such lesions do occur and to report a case illustrating the condition.

The patient, a man of forty years, a sign-painter by trade, was admitted to the wards of the Lakeside Hospital, Cleveland, January 29, 1910, on the service of Dr. C. F. Hoover. He complained of pain in the right chest, shortness of breath and a feeling of extreme weariness; duration two days. His temperature was 102.5°, pulse 120, respirations 35.

Family History: Negative.

Personal History: The patient had had none of the diseases of childhood. He has always been healthy with the exception of asthma, from which he has suffered severely for the last ten years. The history is negative as to pneumonia, pleurisy, malaria, rheumatism and nephritis. He has had gonorrhea several times, but denies syphilis. He drinks a great deal of whiskey and always has a drink before breakfast.

Present Illness: Started yesterday with a great deal of pain in the right chest, slight cough and great shortness of breath. The pain is worse today and the patient is unable to raise the mucus in his throat. He says he has been very blue in color for the past twenty-four hours. He was admitted to the hospital on account of cyanosis and dyspnea.

Physical Examination: The patient is fairly a well developed but poorly nourished man, showing marked cyanosis. There is orthopnea, apparently due to the dyspnea. His mental condition is extremely dull, he goes to sleep frequently while being examined and has to be aroused

in order to obtain a history. He complains of being very tired and says he has had no sleep for two days.

The skin is very rough and dry and dark in color. The feet are extremely cyanotic; the hands are also cyanotic and show, on their dorsal surfaces, numerous dark brown, pigmented spots from one-half to one centimeter in diameter, resembling old syphilitic scars. The mucous membranes are cyanotic, moist, not pigmented.

The lymph glands show general enlargement.

The pupils are regular in outline; they are small and react sluggishly to light and accommodation.

There is marked pyorrhea. The pharynx is much congested. The veins of the neck are not distended. The thorax is barrel shaped, expansion poor.

Upon examination of the lungs the percussion note is high-pitched over the front and sides of the thorax and over the back as far down as the level of the sixth rib; below this on both sides the percussion note is of shorter duration and much less high-pitched. The breath sounds are almost inaudible except posteriorly below the level of the sixth rib. Many râles are heard throughout the chest.

The heart shows nothing remarkable except slight enlargement. The pulse is 120, regular, poorly sustained, easily compressible. The blood pressure of 90 millimeters of mercury.

The abdomen shows no tenderness or rigidity; there are no masses and no free fluid. The border of the liver is ten centimeters below the costal margin. The spleen is not palpable, but the area of dulness on percussion is increased.

All the reflexes are active.

The white blood corpuscles number 22,000.

On admission 15 minims of adrenalin were given; the blood pressure rose to 120 but fell again to 90 within an hour. The patient died from general collapse a few hours after admission.

At the autopsy, performed three hours after death, the findings were as follows:

Thrombosis of both adrenal veins, massive haemorrhagic infarction of both adrenals, organized thrombi in some of the small branches of the pulmonary artery, hyaline thrombi in some of the small meningeal vessels, acute bronchitis, pulmonary tuberculosis (active), tuberculosis of the liver (healed), tuberculosis of the spleen (healed), chronic pleuritis, pulmonary emphysema, arterio-sclerosis (aorta and coronaries), chronic interstitial nephritis (slight), chronic ulcerative colitis.

Both adrenals were somewhat large, and consisted of brownish-red friable masses, resembling old blood clot; on section a very thin layer of cortex, could still be made out, surrounding the brown homogeneous central portion. No suggestion of anything resembling tuberculosis in the tissues about the adrenals could be found.

Microscopic: Numerous sections from various regions of both glands were examined, and all showed practically the same picture. The changes

in the left gland, however, were much less severe than those in the right. It was only with the greatest difficulty that one could make out that the tissue under examination was adrenal gland. The whole gland showed an extensive haemorrhagic infiltration, which was most marked in the medullary portion. The connective tissue stroma of the gland could still be distinguished, but the parenchymal cells were everywhere necrotic, appearing as pale pink staining debris, which in places still retained its typical arrangement in cords. In one or two small areas, a few parenchymal cells which retained their normal staining properties could still be made out. In some areas, especially about the borders of the gland, there were large numbers of polynuclear leucocytes, which for the most part lay imbedded in masses of fibrin. Many of these showed fragmentation of nuclei. They resembled closely the zone of leucocytes often seen at the margin of an infarct. The central vein was filled by an organized thrombus which showed in places canalization, the channels so formed being, in turn, filled with fresh thrombi composed of fibrin, with varying numbers of red blood cells and leucocytes. The larger branches were filled with similar fibrinous thrombi, while the smaller veins were filled with masses of coagulated cells, evidently of more recent date. In the capillaries numerous hyaline thrombi could be seen. No disease of the vessel wall could anywhere be made out. There was nowhere evidence of tuberculosis, and sections stained for tubercle bacilli, other bacteria and for *Treponema pallidum* all gave negative results. Sections through one of the neighboring sympathetic ganglia showed nothing abnormal.

There can be no doubt that in this case the haemorrhage was secondary to the thrombus formation in the veins. The thrombi in the central vein and in the larger branches were very definitely older than those in the smaller vessels. This could not occur if the haemorrhage were primary, for in such a case, as Simmonds has pointed out, the thrombus formation would take place first in the smaller vessels and the clotting in the larger vessels would follow later. Moreover, in cases where the haemorrhage is definitely primary, as in those produced by bacterial capillary emboli, thrombosis of the central vein is not found.

The pathological findings in this case are identical with the findings in the cases of infarction of the adrenals reported in the literature. Simmonds, Lissauer, Wooley, Lavenson, Arnaud, and Hektoen all describe the findings of thrombi of older date in the central veins and large branches, with more recent clots in the smaller vessels.

In searching the literature, one is at first struck with the apparent rareness of adrenal infarction, there being only some twenty or thirty cases reported. It must be remembered, however, that these cases are the observations of the very few who have had their attention called to the condition. When one con-

siders that Simmonds of Hamburg had himself seen seven cases, while Lissauer at Breslau had met with four, one realizes that adrenal infarction cannot be so extremely rare, but that the great majority are probably overlooked.

That adrenal haemorrhage in the adult is much more common than is generally supposed is the opinion of all authorities. Thus Arnaud, who has written the classical description of this condition, found some degree of haemorrhage into the adrenals in one per cent. of his autopsies on adults. Such being the case, it is interesting to note that the only two observers who have studied massive adrenal haemorrhages from the point of view of infarction, have found thrombosis of the central vein present; the one in seven out of eleven cases, and the other in every one of the four cases studied by him. The adrenal haemorrhage occurring in the new-born is, on the other hand, not accompanied by venous thrombosis, but is in all probability due to trauma and the extreme congestion of the organs brought about during delivery by obstruction of the peripheral circulation.

From the above considerations it would seem that haemorrhagic infarction of the adrenals, while rare is deserving of greater attention than it has hitherto received, especially in the English and American literature, where, with the exception of three cases reported by Lavenson, Wooley and Hektoen, respectively, mention of the condition is almost wholly wanting.

The symptomatology of the condition appears to be identical with that of haemorrhage into the adrenals from any cause, and may be summed up in the single expression, "adrenal insufficiency." The two outstanding symptoms for which we must be on the watch are marked asthenia and a low blood pressure, pressures of 90, 80, or even 70 millimeters of mercury sometimes occurring. Bronzing of the skin and pigmentation of the mucous membranes, the essential signs of Addison's disease, are, as one would suspect, almost always lacking, the lesion being too acute for such a process to take place. The case reported here showed definite pigmentation, but the patient was extremely dirty and the pigmentation, I think, that of vagabondage rather than adrenal in origin. The diagnosis is undoubtedly difficult, but has been made on some occasions, and in the case here reported a lesion of the adrenal was suspected ante-mortem.

The etiology of thrombosis of the adrenal veins is very uncertain. Disease of the vessel wall has not been demonstrated in

any of the cases and, in the opinion of most observers, plays no part in the process. Inflammatory lesions in the neighborhood of the organs have been found in some of the cases, as in the two of Arnaud's, in which there was, in one, a suppurating hydatid cyst of the liver and, in the other, an abscess of that organ, while Lavenson's case showed an acute interlobular suppurative pancreatitis.

Simmonds considers the thrombi marantic, all his cases occurring in individuals suffering from a chronic illness—tuberculosis, malignant disease, myelitis, heart failure. This fact and the constant absence of disease of the organ, he considers sufficient ground for his opinion. He also calls attention to the anatomical arrangement of the vessels and thinks this favors the formation of marantic thrombi. Lissauer does not consider the thrombi marantic. He thinks that thrombosis occurs no more frequently in the adrenal veins than in other situations, but that the striking results of thrombosis of the adrenal veins call our attention to the lesion. It is interesting to note that in the case reported here there were, in addition to the thrombi in the adrenal veins, organized thrombi in the small branches of the pulmonary artery and hyaline thrombi in the meningeal and pulmonary capillaries. One of Lissauer's cases also showed organized thrombi in the small branches of the pulmonary artery.

The treatment of the condition narrows down to the giving of adrenalin or the feeding of adrenal gland. That any permanent good can be accomplished by such measures seems unlikely, as an organ necessary to life has been destroyed. However, in one-sided lesions, it is possible that an acute adrenal insufficiency might be tided over until compensatory production from the remaining portions of gland was established. The rise of blood-pressure following the injection of 15 minims of adrenalin was, in the case here reported, very striking, the pressure rising from 90 to 120 millimeters, only, of course, to fall rapidly again to 90.

CONCLUSIONS

1. Haemorrhagic infarction of the adrenals occurs as the result of thrombosis of the adrenal veins.
2. The condition is more common than is generally supposed and is worthy of consideration as something more than a mere pathological curiosity.
3. Thrombosis of the adrenal vein is probably the commonest cause of extensive adrenal haemorrhage in the adult.

4. The diagnosis, while difficult, is possible and the condition should always be considered in patients with acute prostration with low blood pressure.

5. The etiology of the thrombosis is unknown.

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The Committee on Medical Practice and the Plan for the Regulation of Contract Medical Practice.

By J. J. R. MACLEOD, Cleveland, Chairman of the Committee on Medical Practice.

It is not my intention in making these remarks to plead for the passing of the amendments as you have them before you. All I wish to do is to explain in what way the committee arrived at the conclusions of which these amendments are the natural and logical outcome. When you have heard what I have to say I think you will agree with me that the conclusions arrived at were the only ones possible for the committee to arrive at with the evidence before them. We are merely making a proposal to the Academy. It is for the members of this body to decide whether they wish to adopt our proposal or not.

Shortly after coming together the committee realized that a campaign of information should be its first step. No one on the committee had been engaged in contract practice, so that it was essential that the opinions of those who had experience in this type of work should be obtained. The first step towards gaining this information consisted in sending a circular letter to every member of the Academy. In this circular letter certain questions were asked in hopes that the replies would furnish definite data from which the committee could decide as to the nature of its report. We must admit as a result of the experience which we have had, that the questions asked in these circular letters could have been much improved upon but we were new to the business and did our best. The outcome of the circular letters with regard to contract practice was as follows: 27 letters were received from those who are or had been in contract

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practice; eight of these were from men doing casualty work. Six found the latter satisfactory, two found it unsatisfactory. Eight were from those in lodge practice or previously in it, and all stated that the remuneration received was utterly inadequate for the work done. The information in the other eleven letters could not be used. The result of the circular letters then could not be considered satisfactory. The committee had not learned much by this method. Another course had to be adopted. This consisted in personal conferences with men known to be familiar with the various forms of contract practice under consideration. A great deal of valuable information and many useful suggestions resulted from these conferences, but yet the committee did not feel that it was justified in drawing up its final report. It, therefore, arranged for symposia, hoping that in these, besides the papers on the program, a free discussion by men familiar with contract practice would take place. It may be stated that the discussions in these symposia did not prove of so much value as the committee had anticipated, but yet many valuable suggestions were made by various speakers. These have been considered by the committee and some of them incorporated in the proposed amendments. Lastly, several members of the committee have made a careful study of the literature bearing on this subject not only in the journals of this country but in the European journals.

As a result of the investigations along these different lines the committee unanimously came to the opinion that all evils attendant upon contract practice, in all its forms, are dependent on the principle of the *blanket contract*, or in other words, the *capitulation principle*. By this I mean the principle whereby a person contracts with another to undertake for a certain sum of money an unknown amount of work. Having arrived at this conclusion—and it was not until after all the information had been gone over that this decision was made—the committee realized that its work was finished. It realized that, to carry the work farther, it would be necessary to place it in the hands of men who had experience in contract practice and for this reason it has suggested in its proposed amendments that two committees, composed partly of men in contract practice, should take charge of all further developments necessary. It was clearly seen by the committee that the only way to eradicate the

various evils of contract practice was to abolish from contract practice everything in it that involves the capitulation principle.

I shall now proceed to consider more in detail two types of contract practice with which the committee have dealt. I will try to show how the evils associated with both are dependent upon the application of the capitulation principle, and firstly with regard to Lodge Practice: The conditions to which uncontrolled lodge practice may lead are very ably summed up in an article on this subject by Dr. Morris J. Cluman of New York which appeared in THE CLEVELAND MEDICAL JOURNAL for December, 1910. One paragraph from this abstract may be read with profit here:

“At first the chief qualifications for a physician who wished to be a lodge doctor were his medical skill and knowledge, but . . . it was not long before the physician with the best business instincts “crawled and intruded,” into the occupancy of these positions. The physician who knew how to ingratiate himself into the good-will of some of the individual leaders or more active members of these societies was almost invariably elected. At first, he simply had to be a ‘good fellow’ with them to become the holder of the coveted positions. In time, even that was not enough. He had to hold out more inducements, and these inducements naturally varied with the caliber of the men with whom he was dealing. Sometimes the judicious distribution of a few ‘shekels’ among the most influential of the society leaders brought the physician the necessary votes to elect him. Sometimes it was the unwritten promise of a bounteous ‘blow-out’ to the members if he were elected . . . It often happened that a worthy medical candidate would be defeated by his more Philistine colleague. It is easy to see what a deplorable state of affairs such an unequal competition has naturally and inevitably brought about.

“Let us consider what little chance a young graduate now has on the East Side (of New York). If he happens to be a well-trained man from a good medical school, a hospital man and perhaps with a good preliminary medical education, it is all the worse for him. He will not be given a chance to practice medicine legitimately. A fair competition would be conducive to his medical progress, but when he discovers that commercialism has become the prime factor, it is not long before his lofty ideals are dragged and sullied in the dust. Especially is this true of

the able but needy young practitioner. He soon discovers that the only way he can build up a practice is by getting lodges."

Besides these deplorable conditions in New York, one must consider the conditions into which medical practice in foreign countries has developed as a result of this same evil. You are all familiar with the state of affairs in Germany and Austria. I need only refer you to Doctor Chamberlin's admirable paper on this subject. In England things are come to such a pass that, at a recent meeting of the British Medical Association, the medical profession agreed not to treat any cases insured against sickness by the National Insurance Bill. We do not wish to have to adopt such serious measures here; it is better to avoid them by correcting the evil now. The main evil, we believe, can be corrected by the elimination of the capitulation principle. Besides this capitulation principle in lodge practice there is in this type of practice a serious objection on account of the fact that the lodge member has not the choice of his physician, he must take the lodge doctor. It is evident that if the capitulation principle were eliminated in the appointment of this lodge doctor there remains no reason why the lodge should insist on its members calling only on one man.

But if the capitulation principle is to be eliminated in the case of lodge practice so must it also be in the case of Casualty Contract Practice. On the other hand, while abolishing the capitulation principle in this case you must still preserve the possibility for some form of contract between the business firm and a responsible surgeon and for the following reasons: Firstly, the firm, in the progress of whose work many accidents are liable to occur, must be certain at all times of the services of a trustworthy surgeon. This is necessary not only in order that the case may be properly treated and immediately seen to, but also in order that the firm may not afterwards be held legally responsible for permanent disablements incurred by faulty surgical treatment. The firm must guard itself against legal risk by employing surgeons upon whom it can depend. Secondly, the firm must be safeguarded against overcharges. It has come to the notice of the committee that in several instances there has been gross overcharging by physicians who have been called in to treat accidents in emergencies occurring in the work of some large firm. It is right and proper that the firm should be guarded against these overcharges. Because the firm is large and wealthy

is no reason why exorbitant fees should be charged it. Thirdly, a large firm must be certain of the services of a medical man at all times. A competent surgeon must be constantly available, for accidents are frequent and many times require immediate treatment. The management cannot afford to take any chances in such cases.

There is no reason, however, why this contract between the business firm and doctor should be of such a nature that it is the doctor who takes the chances on the number of cases. It is far more reasonable that the business firm should take this risk; it is much better able to afford it.

It is difficult to see why those engaged in contract casualty practice should oppose this amendment. Contracts drawn in conformity with the amendment could be as favorable to the surgeon as formerly. For example, the surgeon could still contract to attend cases according to prices at or above those quoted in the fee bill, since it is only right and proper, if his services may be required at any time, that he should insist on a retainer fee. Then again, there is nothing in the amendment which would prevent doctors being employed by a business firm at a stated salary to act as its medical adviser.

I have been asked, and so have other members of the committee, whether they realized that this amendment, if passed, would compel certain members to resign from the Academy. In reply to this question I would say that the committee never believed that there could be any difficulty on the part of those engaged in contract practice in readjusting their contracts so as to eliminate from them the capitulation principle; a principle by which they are expected to take chances on the amount of work. It is plain that the ultimate outcome of an adjustment along the lines indicated above would ultimately lead to an increase in the average income received by the medical profession for casualty surgery. The profession must indeed have very little to say with regard to the terms under which it works, if it cannot insist in drawing up its contracts according to the form which it finds best and so as to embody the above principles. The very fact that doctors do not take a common stand on certain fundamental business principles is the reason why the business companies, if they wish to, can so often get the better of the medical man in a bargain. I do not mean to imply that the business firms are always trying to get the better of the

medical profession, indeed a great majority of them are, on the contrary, very fair and liberal in all their transactions with medical men. For this very reason, however, it ought to be an easy matter to readjust the form of the contract so as to eliminate the capitulation principle which, in the hands of unscrupulous firms, may lead to the underpayment of the surgeon for his work and is also an incentive to some firms to make one surgeon bid against another. Underpayment in contract practice does not appear to be common in connection with big business concerns, it is, however, quite common in connection with the small ones.

Another reason for the profession of Cleveland taking a stand on the question of contract practice is the passage this year of the State Insurance Bill, which is to go in effect in Ohio on January 1, 1912, and Section 23 of which reads: "Disbursements for first aid. The Board shall disburse and pay from the fund, for such injury, to such employes, such amounts for medical, nurse and hospital services and medicines, *as it may deem proper*, not, however, in any case, to exceed the sum of two hundred dollars, in addition to such award to such employe."

Now I ask you whether or not the medical profession should have anything to say about the terms under which it is employed. According to the section of this bill quoted above the medical man is to have nothing to say about the remuneration for his work. He is to be disregarded. He must take what he is offered. Still another reason is that some Insurance Companies, for example the Traveler's Insurance Company of Hartford, Connecticut, has, on its own initiative, kept away from the principle of the blanket contract with medical men and has a liberal fee-bill, according to which the medical man is paid and paid liberally for the service actually rendered.

Objections have been made to the amendments on the ground that they involve the principle of trade unionism. It is apparently the fee-bill principle that is considered trade unionism. I shall try to show how ill-placed and absurd this criticism is. In the first place there are fee-bills issued by the medical profession in several other cities and districts in this country. How closely they are adhered to, I am not prepared to state, but that they exist is, in the present connection, an important point. For example, I have here fee-bills from the San Francisco County Medical Society and another from the Los Angeles County Med-

ical Association. Here is also one from the Shasta County Medical Society. Other professions have fee-bills. The legal profession in this city does not, so far as I know, have a fee-bill unless for certain types of work, but the legal profession in many other places does have fee-bills to which all members of that profession strictly adhere. In England, for example, the legal profession, which I think you will concede is one of the most ethical and proper professions in the world, has a fee-bill which is very strict and rigidly enforced. A fee-bill, moreover, is really not so necessary in the legal profession as it is in the medical profession, for in the former there is usually an agreement between the client and attorney as to the cost before the legal service is rendered. In casualty surgery this is, of course, impossible, the doctor must instantly attend to the case. There is no time to bargain about the price. It is, therefore, only right and proper that there should be a fee-bill, at least for this type of work, in order that the doctor may be adequately paid for the services he has rendered and in order that the business firm may not be overcharged.

It is interesting in this connection to note that the American Civic Association recently obtained the opinions from one thousand representative business men as to how conditions in the business world, arising out of the recent interpretation of the Sherman Act, should be controlled. The majority agreed that there should be a commission to control prices so that the old conditions of uncontrolled competition, which proved so ruinous to business as a whole, should be rendered impossible. It is well known that uncontrolled competition and underbidding is disastrous from the business point of view; so also is it from the professional man's.

The British Medical Association has taken a very firm stand against the terms of the recently passed National Insurance Bill. I shall read you a part of Dr. Chamberlin's paper which will show you clearly how this matter stands: "From many sources it is even being urged that the time is now ripe for a flat refusal of the profession to engage in contract practice on any other basis than the work done. Sir Alfred Pierce Gould, in a timely article in the *Lancet*, urges the profession as a whole to have nothing whatever to do with contract practice, but to insist upon a treatment similar to that afforded nurses, landlords and tradesmen. While a German correspondent in the same

journal regrets the retention of the per capita basis, which offers a fixed and extremely low amount per individual for an unlimited amount of work.

"As a result of the impending measure, the profession in England has been aroused and united in a way never before realized. Mass meetings have been held throughout the country and the attitude of the government toward the profession condemned by the British Medical Association, the General Medical Council, the Royal College of Physicians, the Royal College of Surgeons and many other societies of scarcely less prominence. In response to invitation the Chancellor has appeared before the members of the British Medical Association and, while certain demands of the profession were acceded to, he declared his utter inability to fix a wage limit for industrial workers. The demands of the British Medical Association at the present time are in brief as follows: (1), Insurance to be extended only to those having an income under £2 (\$10.00) per week. (2), Free choice among a fairly large number of medical men previously appointed. (3), Medical and material assistance to be regulated and administered by a Local Health Commission and not by the Friendly Societies. (4), The method of remuneration to be adopted by the Local Health Commission in accordance with the preference of a majority of the profession in a given district. (5), Medical remuneration to be what the profession considers adequate, having due regard to the duties to be performed and other conditions of service. (6), Adequate medical representation on the various committees and boards of directors."

In the amendments before you a means is offered for the application in contract practice of the above principles. Lastly, I would remind you of the strike of the Leipsic medical profession brought on by the condition into which lodge practice had developed.

It has been said that if members of the Academy decline to form contracts involving the capitulation principle that other doctors outside the Academy will readily be found to do it. This may occur to a trifling degree but surely not seriously because the companies cannot afford to trust their accident cases in the hands of any but men of the highest professional standing. The legal risk is too great.

Lastly, I think it would interest you to know the outcome

of the vote which the committee took on the question of fee-bill. Of 130 votes, 56 were for, 25 against, 11 doubtful, and 38 did not vote. Those that expressed doubt raised the following objections. The first was that the doctor could not collect more than is given in the fee-bill even when the patient was well able to pay more, and the second was that the courts would always decide according to the minimum fee-bill and would never allow more even in the case where a higher fee would be right and proper. I do not know what weight these criticisms may have. They could, however, undoubtedly be eliminated by amending the motion so as to read "the minimal and maximal fee-bill."

In conclusion I would wish to emphasize the fact that this committee composed, as it is, of men who are not familiar with contract practice has gone as far as it can in advising as to the removal of the abuses which seem to exist. It has felt that the hard work necessary for the ultimate adjustment of these matters must rest with a committee partly composed of men engaged in such practice. At the same time, this committee has unanimously agreed that the principle of the blanket contract is fundamentally wrong and that so long as it exists there can be no very definite improvement made in the control of the undoubted abuses of lodge practice as well as of contract practice.

Chronic Deforming Arthritis Developing During the Course of a Tuberculous Infection of the Ankle.

By GEORGE I. BAUMAN, M. D., Cleveland, Ohio.

I wish to report the following case which recently came to my attention and which I thought might prove instructive from the standpoint of diagnosis and treatment.

A girl, now 22 years of age, whose family and previous personal history are negative as far as the present trouble is concerned, first complained nine years ago of pain in the legs and particularly in the left knee, which was slightly swollen. This was soon followed by pain and immense swelling in the left ankle, where an abscess developed. This ruptured and there has been a discharge more or less continuously from a sinus near the external malleolus. The swelling subsided somewhat, but the ankle is still large, is quite tender and has the open discharg-

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ing sinus. The patient of course lost weight and suffered the usual consequences of a severe local infection.

Soon after the development of the abscess about the left ankle, other joints, one after another, became tender, slightly swollen and stiff until practically every joint in the body had been affected. Only liquid food could be taken on account of the ankylosis of the temporo-maxillary articulation, she could be moved only with the greatest difficulty on account of the tenderness of the joints and she was unable to help herself in any way owing to the stiffness. Within the last few years her general condition has improved somewhat and there is very little tenderness in the joints, but there is little or no improvement in motion. The patient is about as helpless, and possibly hopeless, a cripple as one is ever called upon to see. It would be useless to attempt to describe the condition of each joint, but it might be of interest to describe a few in a general way. The teeth can be separated now about one-half inch so that she is able to take solid or semi-solid food. The teeth and lower jaw are deformed from the long-continued fixed position. The shoulder joints are ankylosed and the little motion possible from the scapula is of no use on account of the fixation of the elbows and wrists. The fingers show a variety of deformities consisting of ankylosis, contractures and dislocations. The head can be rotated slightly. The spine is almost completely ankylosed in a position of lateral curvature and rounded kyphosis. The hips are ankylosed in a position of marked flexion, one being abducted, the other adducted so that a separation of the thighs is practically impossible. The knee-joints are ankylosed in a position of flexion. The ankles are completely ankylosed, and the toes show the same varieties of deformity and dislocation as the fingers. Periarticular swelling is not marked at present and nodules or exostoses were not discovered about the joints. Although radiographs would no doubt be interesting and instructive it is impracticable to obtain them in this case. In spite of the variety of diagnoses that have been made, such as arthritis deformans, rheumatism, elephantiasis and a few others, it seems to me that the diagnosis is simple. From the original focus, which there is no doubt was a tuberculous infection of the ankle followed by a mixed infection after the rupture occurred, toxins were poured out in such quantities as to practically flood the system. The joints, as is frequently the case, received the brunt of

the attack and suffered the greatest damage. This seems much more likely to me than the theory that the various secondary joint affections were caused by the tubercle bacillus itself, although this also is possible.

The prognosis is of course very unfavorable. Had the original focus been eliminated, even by amputation of the leg, if necessary, at the very first appearance of serious secondary joint disturbances, I am sure all of the subsequent trouble would have been avoided. Any treatment started now should aim first to eradicate the ankle infection by one means or another and this should be followed by manipulation under anesthesia, of one joint after another. In this way, motion could no doubt be obtained in some joints and the position of all could be improved. The treatment would, however, be long and tedious and without promise of a cure, so that one can scarcely blame the parents of the girl for not undertaking it, especially since so many things have been tried and have failed.

310 Osborn Building.

The Action of Caffein on the Mammalian Circulation.

By J. D. PILCHER, M. D., Cleveland, Ohio.

(From the Pharmacological Laboratory of Western Reserve University, Cleveland, Ohio.)

The experiments were made chiefly on dogs under morphin ether anesthesia. The following observations were made by the usual methods: blood pressure; the volume of the kidney, spleen, loop of intestine and heart; perfusion of excised organs; the action on the vasomotor center was studied by means of perfusion of the kidney or spleen with the nerves only intact. The caffein base was injected into a femoral vein from a burette in successive injections of 2, 5, 10 and 20 milligrams per kilogram doses; one milligram per kilogram is equivalent to one grain to an adult man.

Following a rapid intravenous injection of caffein there is an abrupt fall in blood pressure of 10 to 30 millimeters of short duration and dependent upon cardiac depression; practically this is of slight interest, as it does not occur with other methods of administration. With small or therapeutic doses of caffein, there is an increase in cardiac tone, that is, the heart contracts to a greater degree in systole and relaxes less in diastole; there is

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vascular relaxation—peripheral in origin, for the vasomotor center itself is stimulated; and usually, but not always, there is a rise in blood pressure of 5 to 20 millimeters. The end result consists in a more rapid flow, a greater mass movement of blood as a result of the cardiac stimulation and vascular relaxation. Larger doses, greater than any used in therapeutics, result in a decrease in cardiac tone (or increase in volume) and further vascular relaxation, the two resulting in a progressive lowering of the blood pressure. The vascular paralysis is completed while the blood pressure is still falling, or before the cardiac weakening is maximal. When 100 to 150 milligrams per kilogram of caffein have been injected, the blood pressure has reacted a fairly constant level of 60 to 70 millimeters, exceptionally somewhat lower, beyond which successive doses of caffein do not lower the pressure appreciably until acute cardiac dilatation occurs and results in death.

The increase in cardiac tone with the smaller doses of caffein is shown in a series of experiments by recording the cardiac volume. The volume of the heart was usually decreased below the normal or remained about the normal until 40 to 60 milligrams per kilogram of caffein had been received, a dose which is much greater than the therapeutic dose of caffein. Exceptionally, when the heart was dilated before giving caffein, the reduction in volume was very great and much larger quantities of caffein were necessary to dilate the heart to the original volume at the beginning of the experiment. This suggests that clinically caffein may be more efficacious when the heart is dilated. With larger quantities the heart usually progressively increases in volume, or decreases in tone, and finally stops in the extremely distended position. Further evidence of the cardiac stimulation and also of the vascular depression is found in the experiments in which the volume of the spleen, intestine and kidney were recorded. These organs usually show an increase in volume while the blood pressure is rising, which means that the heart is driving more blood into them; and as the increase in volume is greater than could be explained by cardiac stimulation alone there must be vascular relaxation also. When the animal has received about 100 milligrams per kilogram of caffein the vascular paralysis is fairly complete and successive doses of caffein cause a decrease in organ volume which is manifestly due to further cardiac weakening.

Conclusive proof of the peripheral vasodilator action of caffein is offered by the action of caffein on excised perfused organs, alone and with various percentages of caffein, and the vein outflow measured. In these experiments, and in those collected in the literature, very little dilatation was obtained with solutions even much stronger than could obtain in the living animal. However, it was found that caffein solutions much weaker than ordinary therapeutic doses would form in the body would lessen the constricting effect of epinephrin solutions very considerably. It would seem, then, that caffein acts on the peripheral vessels by preventing constrictor tone and not, as do chloral and the nitrites, by dilating the vessels directly. This dilator effect would also obtain with therapeutic doses and is of therapeutic value.

The stimulating action of caffein on the heart described above agrees essentially with the generally accepted clinical observations, but the action on the vessels differs materially from the usually accepted views. By a method of perfusing organs with the nervous connections only intact, so that no caffein reaches the perfused organ but does reach the vasomotor center, it was learned that the vasomotor center itself is stimulated by caffein but that this stimulation is usually not effective against the direct action of caffein in the vessels themselves, although it may be effective occasionally under special conditions. A specific vasodilator effect on the kidneys has often been attributed to caffein. However, in these experiments it was demonstrated that the vessels of other organs, viz., the spleen and loops of intestine, react to caffein by dilatation quite as much as does the kidney, so that caffein by no means acts specially on the renal vessels.

The beneficial action of caffein upon the circulation would seem to depend upon the interaction of these conditions, namely, the cardiac stimulation and the vasodilation, resulting in an increased flow of blood through the parts. This beneficial action does not necessarily require an increase in general blood pressure, the vasodilation counterbalancing the increased output.

In therapeutic doses the action of caffein on the heart rate is relatively of slight importance, and clinically the reports of different observers vary considerably, with the majority reporting a moderate slowing. This variation can be understood when it is recalled that caffein stimulates the heart muscle directly,

tending to increase the rate, and also stimulates the vagus center, tending to slow the rate. In dogs, small doses result in a slightly increased rate, which may return to normal shortly after injection. As the dosage increases, the heart rate progressively increases until a maximum of about 300 per minute is attained; irregularities may change this rate considerably. Occasionally, if the vagus center is especially active, small doses may induce a slowing, and after very large and toxic doses the rate may return to the original. With 20 milligrams and above, irregularities are common and may affect either the rate or the strength of the beats. The irregularities have been attributed to arrhythmia between the auricles and ventricles, the stimulating action of caffeine on the muscular substance finally resulting in idioventricular rhythm.

Clinically and experimentally caffeine from therapeutic to toxic doses, increases both the rate and the depth of respiration. Respiratory stimulation is said to be especially noticeable in alcoholic intoxication and this point will be discussed later.

The circulatory action of caffeine, namely, the increased blood flow, would tend to result in diuresis. Indeed, a critical analysis of the experimental data reveals no good evidence of a direct action of caffeine on the kidney cells, such as is commonly assumed, and it is therefore probable that the diuretic effect of the xanthin derivatives, like that of digitalis, is due to the improved condition of the circulation.

So far as the pharmacological experience goes, the therapeutic doses of caffeine should have a beneficial effect on the circulation, particularly in cardiac dilatation, by increasing the blood flow and favoring diuresis. As compared with digitalis, it would be inferior in that its action is not as powerful, nor as constant, nor as lasting; nor would it have the beneficial effects of digitalis on cardiac rhythm. On the other hand, it acts more promptly, presents less danger from overdosage, and would tend to increase the mass movement relatively more. The respiratory stimulation may also be desirable. A combination of the two drugs might be advisable, theoretically. Caffeine was used by us merely as a representative of the xanthin group. There is no doubt but that theobromin has the same effect on the circulation, without causing the psychical excitement. If a pure circulatory effect is desired, theobromin would, therefore, be desirable. Our experiments with alcohol suggest, however, that the caffeine action is more dangerous when the heart is abnormal. This would

enjoin caution in its use in cardiac diseases, but it is doubtful whether this danger need be apprehended with the doses ordinarily employed.

In another series of experiments on cats the actions of caffein and alcohol alone and combined were studied. Alcohol modified the action of caffein on the heart rate in the following manner: Alcohol alone has no characteristic action on the heart rate; caffein alone causes quickening, increasing to a maximum with large doses, with irregularity in fatal cases only. When the two are combined alcohol (which alone has no noticeable effect) seems to sensitize the heart to the toxic action of caffein, so that small and moderate doses of the two cause a greater quickening; with somewhat larger doses of each, cardiac irregularities are common, while neither alone causes irregularities except in fatal cases. This leads to greatly increased fatality.

Small and moderate doses of alcohol (2 cubic centimeters), which were never fatal alone, when added to large doses of caffein (120 milligrams) increased the fatality of the latter from 28 per cent to 100 per cent, which is far greater than simple summation; and combinations of moderate doses of each (alcohol, 4 cubic centimeters, and caffein, 30 milligrams), which alone were never fatal, resulted in 67 per cent fatality.

Small and moderate doses of caffein (up to 30 milligrams, which is larger than therapeutic doses, however), lessen the narcotic effect of doses of alcohol which caused light sleep to light coma and frequently reversed the narcotic state into an excited condition which would seem to be no improvement. Caffein in any dose did not improve the narcosis of doses of alcohol causing deep coma lasting for several hours or until death, and the larger doses of caffein increased the narcosis.

The effect on the motor system agreed fairly closely with the narcotic effects. Occasionally the hypodermatic administration of caffein to animals in alcoholic narcosis resulted in temporary mental and motor improvement which was due to the pain of the injection only.

Alcohol produces a marked fall in temperature, increasing with the dose; caffein raises the temperature moderately, the dose bearing little influence. Large doses of caffein—far greater than the therapeutic dose—will prevent the fall in temperature of small doses of alcohol, but caffein in all doses increases the

fall from large doses of alcohol, probably because of the greater narcosis the combination produces.

Aside from considerable quickening during the first hour or two, alcohol had little effect on the respiration; caffein alone had little effect on respiration except for a slight quickening with large doses. Caffein in any dose exerted little influence on alcohol in any dose. The combination of a moderate dose (4 cubic centimeters) of alcohol with a large quantity of caffein results in a somewhat greater quickening. Large doses of alcohol show less quickening when caffein is added. In the former experiments on dogs, caffein caused considerable increase in the rate and depth of respiration and experiments in the literature show a greater respiratory response to caffein than was obtained in this series and it would seem that the respiratory response of cats to caffein is less than that of other animals.

If one may deduce a practical application from this work it would seem to be the following: In severe acute alcoholic intoxication little is to be expected from caffein. In somewhat severe intoxication large therapeutic doses of caffein (5 to 15 grains) may lessen the narcosis and hasten recovery. In still more severe intoxications caffein does not lessen the narcosis and may increase it, and, further, the danger in alcoholic poisoning lies in the vascular paralysis and subsequent loss of heat which caffein in no way lessens, but may increase.

The work was done with Professor Torald Sollman, to whom I gratefully acknowledge my indebtedness.

Clinical-Pathological Note.

EDITOR'S NOTE: Under this read it is hoped to publish from time to time, brief summaries of cases of more than usual interest, cases in which the clinical and pathological findings help to elucidate each other.

Complete Amyloid Infiltration of Both Adrenals Associated with Addison's Disease.

M. K., a Pole, aged 25 years, was admitted to the City Hospital on July 13 with a diagnosis of tuberculous peritonitis. He had entered the Lakeside Hospital on May 29, complaining of pain in the abdomen which had been present for four months; swelling of the legs and loss of weight. His family and personal history were negative. The notes of the physical examination made at the time of admission to the Lakeside Hospital state that the skin was normal, although one of the Resident Staff has since called attention to the fact that there was a suggestion of discoloration, which was supposed to be of the type sometimes found associated with

tuberculosis. The abdomen was greatly distended, the border of the liver was at the costal margin and the spleen could not be felt because of the abdominal distension and tenderness.

During his stay at the Lakeside Hospital the patient was tapped three times, large amounts of cloudy, yellowish fluid termed chylous being removed from the pleural and peritoneal cavities. After his removal to the City Hospital he was repeatedly tapped. The red blood corpuscles numbered 3,000,000, the white corpuscles 27,500. The urine contained 2.3% of albumin and many casts of all kinds. The temperature was variable while at the City Hospital, running from subnormal to 103° shortly before death.

Although the clinical diagnosis which appears upon the City Hospital records of the case is tuberculous peritonitis the diagnosis of Addison's disease was also considered. In favor of this were such bronzing of the skin as was present, a small area of pigmentation upon the lower lip, the marked asthenia and emaciation and the poor circulation without organic heart disease. The patient died on November 3, the duration of his illness having been, therefore, nine months.

At autopsy, the serous membranes showed nothing which would account for the effusions which had been present. In the liver there were numerous gummata, most of them subcapsular, a few calcified. The liver lobules were outlined by an increase in interlobular stroma which was not marked enough, however, to cause deformity or a hobnailed surface. The liver weighed 1,300 grams. The spleen weighed 800 grams. It was very firm, the cut surface showing a peculiar, uniform, dark, reddish-brown appearance, leading to the belief that the chief cause of the increase in size was a diffuse stroma proliferation. The adrenals were of the so-called paper type, very thin, with an unusually large surface area. There was the normal differentiation between cortex and medulla and in the absence of any gummata or necrosis an adrenal insufficiency was considered improbable.

Microscopically, the interlobular inflammation in the liver is found to be quite active, the connective tissue being young and richly infiltrated with lymphocytes. Lymphocytes are also present within the lobules. The change in the liver reminds one more of congenital syphilis than of the dense fibrosis which is usually associated with the gummata of tertiary lues. The spleen is almost wholly transformed into amyloid. About some of the smaller arterioles a few of the lymphoid cells of the original Malpighian bodies still remain. The normal cellular pulp has disappeared entirely, being replaced by the homogeneous amyloid material through which run the distended venous sinuses. Both adrenals have also undergone practically complete amyloid transformation. Only the shadows and outlines of the alveoli of the original parenchyma are seen, separated from each other rather more widely than normal by amyloid. The parenchyma cells have almost entirely disappeared. Such as can still be recognized are shrunken, granular, with very small pyknotic nuclei.

Addison's disease due to syphilis is not an exceedingly uncommon condition. In the cases reported, however, the adrenal destruction has been due to the localization of the active specific inflammatory process in the glands; the caseation consequent upon gumma formation may involve the structures to such a degree as to produce an adrenal insufficiency. In this case the insufficiency was not due to an actual destructive syphilitic process, but to the nonspecific amyloid infiltration which occurs so frequently in other organs in tertiary lues. Although primarily

due to syphilis the insufficiency in this case cannot be considered due to syphilis of the adrenals. The same unusual complication might follow any of the processes other than syphilis in which long continued destruction of the tissues of certain organs leads to amyloid infiltration of other organs.

O. T. SCHULTZ.

Wound Surgery in 1569.

I found him in a high fever, his eyes deep sunken, with a moribund and yellowish face, his tongue dry and parched, and the whole body much wasted and lean, the voice low, as of a man very near death; and I found his thigh much inflamed, suppurating, and ulcerated, discharging a greenish and very offensive sanies. I probed it with a silver probe, wherewith I found a large cavity in the middle of the thigh, and others round the knee, sinuous and cuniculate; also several scales of bone, some loose, others not. The leg was greatly swelled and imbued with pituitous humor . . . and bent and drawn back. . . . It seemed to me there was little hope he would escape death.

After dinner, we began our consultation, all the physicians and surgeons together. . . .

The consultation ended, we went back to the patient, and I made three openings in his thigh. . . . Soon after he asked to sleep; which he did for near four hours; and everybody in the house began to feel happy. . . .

The following days, I made injections into the depth and cavities of the ulcers of Egyptiacum dissolved sometimes in *eau-de-vie*, other times in wine. I applied compresses to the bottom of the sinuous tracks to cleanse and dry the soft spongy flesh, and hollow leaden tents, that the sanies might always have a way out; and above them a large plaster of Diacalcitheos dissolved in wine. And I bandaged him so skillfully that he had no pain; and when the pain was gone the fever began at once to abate. . . . And all that we agreed in consultation was done in due time and order; and so soon as his pains and fever ceased he began steadily to mend. He dismissed two of his surgeons and one of his physicians, so that we were but three with him.—Ambroise Paré, "Journeys in Diverse Places"; The Journey to Flanders, 1569.

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EDITORIAL

Valedictory.

With this issue it becomes necessary to pronounce a benediction and to announce the retirement, because of the pressure of other duties, of Doctor William H. Weir from the editorship of THE JOURNAL. In the five years during which he was helmsman of the ship of fate of THE CLEVELAND MEDICAL JOURNAL the latter was transformed from a publication which was more or less frankly commercial into a journal which is clean, which tries to seek such light as the medical horizon may yield and which is, it is hoped, of some slight value other than as shaving paper. In this transformation Doctor Weir had an important part and he gave unreservedly of his energy and un-

stintedly of his time. Only those who have had the interests of THE JOURNAL most at heart can realize how freely he gave of himself and how uncomplainingly he bore a too heavy burden under often vexatious conditions. Much as Doctor Weir's departure from the field that he has tilled so well is to be regretted, it must be admitted that his rest is well earned and that such surcease from editorial pangs and pains as he may be able to obtain is fully deserved. What we might say of him would do him but poor justice. His reward must continue to lie in the knowledge that those who know best how and how hard he has worked in the interests of THE JOURNAL appreciate most fully his services.

By way of salutation little enough is to be said. The present policy in regard to advertising is to be continued. Of definite editorial policies we have as yet none, except the wish to maintain THE JOURNAL at its present standard. The editor, however god-like he may appear to any except the printer's devil, is, after all, only the humble servant of those that THE JOURNAL seeks to serve. More important, in the determination of the value of a publication, than the editor and those more actively associated with him, is the nature of the publication's clientele. Our own feeling is that if the medical profession of Cleveland deserves a journal it deserves a good one or none at all. Our hope is not so much that THE CLEVELAND MEDICAL JOURNAL may be worthy of the Cleveland medical profession as that the profession may be worthy of a good journal. Given the latter condition and the journal must inevitably follow. THE CLEVELAND MEDICAL JOURNAL can be very little better than the work of the local profession, its tone can be but very little higher than that which the physicians of Cleveland, as a body, express in their professional activities, it can do little more than reflect the glories or mirror the defects which the profession may show. As editor we shall, therefore, be most humble in the acceptance of such help as may be offered and most willing in the receipt of such suggestions as may be made with the purpose of improving THE JOURNAL.

O. T. S.

Money Before Health.

An interesting commentary on the modern point of view may be taken from the editorial page of a recent number of the

Saturday Evening Post, referring to the Kansas method of dealing with the fake stock promoter. Let us quote: "The interstate traffic in worthless engravings is largely conducted by means of advertisements, and it will probably be found possible to discourage this by putting the responsibility where it belongs, that is, upon the publication that circulates the advertisement. No publication can perform the office of tout for a wildcat stock and escape the moral responsibility. It should no longer be possible for such publications to escape legal responsibility." Substitute "medicines" for "engravings," and "fake cures" for "wildcat stock" and the paragraph applies at once to the patent medicine trade. But what a howl would arise if it was even suggested that the responsibility for the sickness and the deaths which follow on the heels of answers to the patent medicine advertisements should rest on the paper which voices the wonderful claims of these drugs! Laws apparently can be made and in Kansas have been made which require a substantiation of claims to cure a sick pocketbook, but it is a far day to the time when laws will be made forcing the substantiation of claims to cure a sick person. Yet such a statement gives hope, for just as through long years of Federal attention to the welfare of the hog, the cow and the sheep, attention is being gradually drawn to the needs of the human animal, so perhaps a hundred years or so of execution of laws tending to protect the gullible from the sharpers who would pick their pockets may call attention to the sharpers who merely remove health and life, though the ultimate motive will probably be the fact that in addition to these commodities the sacred pocket book is also attacked.

R. G. P.

The Revision of the Laws of Colles and of Profeta.

Man-made laws, being made by so fickle a creature as man for the determination of his own rights and for the protection of his own life and property, are themselves mutable. Based upon custom and made by legislative enactment, they may be altered or abrogated by legislative pronunciamento or by the decisions of properly constituted judicial bodies. The laws of property and of conduct can be no more absolute than the people or their representatives decree them to be. The laws, so-called, of the natural sciences are based upon natural phenomena, they are not made simply by human fiat. If the phenomena are cor-

rectly observed and correctly interpreted and if the conclusions deduced from the observations and the interpretations are logical a law in science must be a statement of absolute fact, it must be immutable so long as nature works always in the same way. But into the making of the laws of science there enters, in addition to so much as nature chooses to reveal, the human element which interprets the revelation and states the law. With the entrance of this element there is given the possibility of error; the laws of science, as stated by man, may be not so much changeable as either right or wrong. What is today an hypothesis may become a law when sufficient facts in its favor are adduced. And what is today a law may become less than an hypothesis when the increase in our knowledge adds facts which are contrary to the law.

No matter how much we may know of the diseases which are considered infectious, our knowledge of them must be considered incomplete and relatively slight so long as we do not know their actual causes. Only after the etiological agent in any given infectious disease is known can we begin to test and prove what we had before considered facts and what we had before used in the making of laws. As our knowledge of the pathogenic microorganisms has increased, one infection after another has been stricken from the list of those paternal sins which may be visited upon the unsuspecting son. There are few today who are willing to concede the possibility of the transmission of tuberculosis by way of the germ cells. Even in the case of syphilis, which offered apparently the most striking evidence in favor of the hereditary transmission of disease, we are coming to believe that actual inheritance has never been established.

A syphilitic father, a luetic child and a mother who was apparently free of the disease and who remained seemingly free when subjected to other chances of infection formed a premise which seemed to make the conclusion of Colles logical and correct. The discovery of *Treponema pallidum* gave us something tangible with which to work. Purely theoretical considerations alone made it appear improbable that the organism could be conveyed by the spermatozoon to the ovum without infecting the mother. Investigation soon showed that in congenital syphilis there occur either pathological changes so widespread and so profound or organisms in such overwhelming numbers as to preclude the possibility of the development of an ovum infected

at the time of conception. Further investigation by means of the Wassermann reaction showed that the mothers of congenitally syphilitic children give a positive reaction in every case if examined shortly after childbirth and that women who have had luetic children within a period of four years give positive reactions in as large a percentage as do cases of known latent syphilis. There is little left, then, to uphold Colles' law. And in the case of Profeta's law investigation by means of the serum reaction has shown that it is often just those cases which seem to prove the law, the apparently healthy and supposedly immune children of luetic parents, in which positive reactions occur. The laws of Colles and of Profeta were both based upon assumptions which were not actually capable of proof or of disproof at the time the laws were stated. Both were supported by what appeared to be facts and appeared so because our knowledge was not sufficient to distinguish between fact and fiction. Both are today so unsupported that they are transformed from laws into misstatements. Both need to be fundamentally revised. The revision Bering has given in a very few words, which change Colles' law so as to say that the mothers of syphilitic children are not immune but have latent syphilis, and Profeta's so that it reads: the children of syphilitic mothers are either healthy or luetic, never immune.

O. T. S.

Physician Heal Thyself.

The Academy's failure to adopt the amendments proposed by the Committee on Medical Practice leaves the matter of contract practice *in statu quo*, and the question arises whether the status that has existed and that must continue to exist until the Academy shall decide to reconsider its action is best for the profession. There are usually at least two ways of doing things. One is to do nothing, to let affairs drift as they will and to hope that the conclusion that will eventually arrive will be favorable. Another is to take the bull by the horns with the hope that there is at least an even chance at winning in the resulting struggle. One method is passive, the other active. Which shall we choose? Some may deny that there is any necessity for choice at this time—we may have been needlessly exercised over a teakettle tempest.

In trying to determine just where we stand it may be well to remember that the Committee on Medical Practice was not

chosen at the solicitation of its members for the mere amusement of the latter. Nor did the causes which led to an investigation of the questions of dispensary abuse and contract practice originate within the Council of the Academy. Certain members of the Academy felt that there exist certain abuses. Feeling thus, the only course that they could pursue was a formal complaint to the Council. The complaint having been lodged, the Council could not do otherwise than investigate the questions brought up and for the purposes of investigation formed the Committee on Medical Practice. It could have been foretold that this Committee would find that either conditions are not serious enough to warrant further contemplation by the Academy or that contract practice is associated with certain evils which are not best for the profession. The Committee came to the latter conclusion. The existence of certain abuses having been established, the Committee's work was finished. It was an investigational, not a corrective body. The correction of the contract practice evil must rest with the Academy itself—the Committee on Medical Practice could only suggest what it considered to be the best solution, leaving the acceptance or the refusal of the suggested plan in the hands of the Academy. The latter body chose to refuse to accept the plan proposed.

We are now where we were some months ago, with the difference that the existence of undesirable features connected with contract practice is an established fact rather than a thing imagined by a few individuals. Fortunately, contract practice in the various forms met with in Cleveland is not yet fraught with such dangers to the profession as exist in New York City, for instance, or in Great Britain or in Germany. But with increasing competition within the profession and with the growth of manufacturing establishments in Cleveland there is given the possibility that matters may become worse instead of better if left too entirely to themselves. The average physician is supposed to be notoriously "easy"—almost anyone can get the better of him in almost any sort of a transaction. If he must deal as an individual with such organizations, fraternal or commercial, as wish his services he will almost certainly emerge from the lesser orifice of the cornucopia. Only by concerted action through his medical organization can he hope to demand and to obtain his due. We do not insist that the amendments proposed by the Committee on Medical Practice offer the only solution which will ade-

quately protect the physician. But we do maintain that, the occurrence of certain undesirable features in contract practice having been established, the Academy owes it to itself to protect its members, some of them even against themselves, by devising some plan for correcting such evils as may exist before they become worse. It is better for the Academy to try to cure the evils of practice while the symptoms are yet mild than to wait for the other fellow to decide what is best for us after we have become too weakened for protest by exploitation.

O. T. S.

Which Will Be Next?

Two weeks ago, we noted in the Propaganda for Reform department that one of the high-class surgical journals of the country—*Surgery, Gynecology and Obstetrics*—had notified its subscribers that, commencing with the January, 1912, issue, it would advertise no pharmaceutical products that had not been approved by the Council on Pharmacy and Chemistry. The January issue is out and it is a credit not only to its publishers but to the surgical profession of the United States. This makes three independent medical journals—*Surgery, Gynecology and Obstetrics, Southern Medical Journal, Cleveland Medical Journal*—which have adopted the advertising standard set by the American Medical Association through its Council on Pharmacy and Chemistry. Which will be next?—Current Comment, *Journal of the American Medical Association*, January 20, 1912.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Pituitary Extracts: In the November number of the *Archives of Internal Medicine*, Carey P. McCord reports the results of an investigation of the depressor action of pituitary extracts. It is generally conceded that intravenous injections of the extract of the infundibular portion of the pituitary gland cause a rise in blood pressure; that this rise is due to a peripheral constriction of blood vessels and that when repeated injections are made, the rise in pressure diminishes with each injection until a fall in pressure occurs. This change in the effect of repeatedly administered injections of pituitary extracts is designated as its "depressor action." His conclusions are: (1) The depressor action of pituitary extract elicited by repeated injections is not due to the fatigue of any peripheral mechanism, nervous or muscular. Perfusion experiments indicate that it constricts all the blood vessels of the body by a direct action on the muscles of the arterioles, and often repeated injections show practically no decrease in the constrictor reaction. Organs removed from animals giving only a depressor reaction with pituitary

extract show on perfusion with the extract in Locke's solution the typical constriction of their vessels. (2) The depression of blood pressure following numerous injections of pituitary extract is not due to an overbalancing of peripheral constriction by a central dilator influence. Such a counteracting dilator influence of central origin is always weak, and no more pronounced after repeated than after the initial reaction, and moreover it does not come on until the fall of pressure is at its lowest. (3) Sudden depression or slowing of the heart, though occasionally showing as a notch in the blood pressure records, is not the cause of the typical drop in pressure obtained after repeated injections, for such depression is not similar either in conformation or in time to the depression obtained by the latter means, and may in fact, exceptionally occur with a weakened heart. (4) Experiments indicate that when the blood becomes sufficiently saturated with pituitary extract, an interaction takes place which converts its constricting action on the peripheral vessels into a dilating one.

Bronchial Asthma: In the *American Journal of Medical Sciences* for December, Isaac Ivan Leman considers the treatment of bronchial asthma, and concludes that the drug which will give the surest relief in an attack, morphin, is the drug which we should reach for last. The distress of a paroxysm is so great, the relief by morphin so complete, and so sweet, and the occasion for the use of the hypodermic arises so repeatedly, that it is almost certain that we shall create a habit. Morphin, therefore, should be a last resort. Much safer but also much less sure is the action of atropin. Where it is successful its effect is probably to be attributed to its antispasmodic influence on the terminal nerve endings, causing a relaxation of the contracted musculature of the bronchi. In a relatively few cases nitroglycerin by hypodermic affords relief. There are probably cases where the blood pressure is high. Perhaps the most efficacious drug next to morphin is adrenalin chloride. Where it succeeds its action is nothing short of marvellous. Hardly have the ten to fifteen drops of the 1 to 1000 solution been given under or into the skin when the patient will declare that he is already better. In fact, it has been his repeated experience that the relief begins before the hypodermic needle can be withdrawn. He is emphatic, however, in saying that while his results have been usually gratifying, still he has not been without failures. Another point worthy of notice is that the sibilant and sonorous rales were not banished coincidently with the relief of the paroxysm. If we assume, as he thinks it most plausible, that the adrenalin relieves the spasmodic contracture of the bronchi then we cannot attribute the production of these rales to this bronchial spasm. His observations are: (1) Blood pressure is not usually high in paroxysms of asthma. (2) Blood pressure is not increased by adrenalin administered hypodermically in such paroxysms, but tends rather to be lowered. (3) Adrenalin hypodermically frequently relieves the paroxysms probably by relaxing the bronchial spasm. This relief is wonderfully rapid. In many cases it is also lasting and the patients have a rest for longer periods than after being relieved by other means. Other patients find it necessary to demand several such hypodermics in the course of twenty-four hours. It has been objected that the habitual use of adrenalin will bring about extreme arteriosclerosis, and experimental work as well as clinical cases with autopsy, have been cited in evidence. To this there are two replies: (a) The frequency of the existence of arteriosclerosis and bronchial asthma in the same individual makes it impossible to say that the arteriosclerosis is due to the administration of adrenalin, and not to the usual fundamental cause underlying both the asthma and the arteriosclerosis. (b) Even if it were granted that the adrenalin is responsible for an aggravation of the arterial degeneration, still the great relief from the

misery of the attacks more than justifies its use. As to the treatment of the intervals, causal treatment should, if possible, be considered. The sheet anchor in the treatment of bronchial asthma is iodine, usually in the form of potassium iodide. The practically unanimous testimony of patients is that under its use the paroxysms grow much less frequent and of lessened severity. It is not necessary to give large doses; therefore, it is usually possible to avoid any disturbance of the stomach.

Respiration Disturbance: C. F. Hoover in the *Journal A. M. A.* for November 25th considers certain disturbances of respiration due to nuclear and infranuclear disease. Such disturbances may occur after the use of morphine in patients with tabes, also in sclerosis of the brain arteries, in tuberculosis of the mediastinal lymph glands, and in aneurysm of the first portion of the aorta. He has previously reported experiences with patients who had incipient tabes, where grave symptoms were shown after receiving one-quarter of a grain of morphine hypodermically. They suddenly lost consciousness, and ceased breathing for twenty minutes. After the use of artificial respiration for twenty minutes automatic respiration was resumed and consciousness returned. He afterward learned of several similar cases, one of which resulted fatally. Some patients with cardiovascular disease develop Cheyne-Stokes breathing after a moderate dose of morphine. It is a common experience to see a patient with arteriosclerosis develop Cheyne-Stokes breathing immediately after a hemiplegia from arterial thrombosis and then recover from all respiratory symptoms as he recovers from his hemiplegia. Yet during all these periods there will not be the slightest indication of any change in the mass movement of the blood. In the tabetic cases we are dealing with a process which is limited to the bulbar nuclei and is not associated with disturbances in the higher cerebral structures, as we know occurs in arteriosclerosis and which may play a part in experiments of forced breathing in healthy subjects. He believes that enough has been shown to clinch several practical points, viz: (1) that the use of respiratory depressants must be employed with great caution when there is any reason for suspecting an anatomic degeneration in the respiratory centre, and (2) that the use of oxygen inhalation will restore the normal respiratory rhythm when an alternating apnea and hyperpnea are caused by deficient oxidation of the blood, as in mountain sickness, or when the same altered rhythm is associated with arterial disease. He also calls attention to some instances of disturbed respiration which originate from disturbed peripheral innervation of the lung. He reports a case in which bradycardia was associated with tachypnea. The bradycardia naturally suggested the use of atropine, and he was gratified to find the bradycardia and tachypnea would both subside in ten minutes after the hypodermic injection of 1/100 grain of atropine sulphate. This was given routinely morning and evening, after which treatment there was no return of the paroxysms. The patient had relief by atropine from several paroxysms before the routine treatment was adopted. He states that the relief of bradycardia of vagal origin by atropine is familiar enough, but why should tachypnea be arrested by atropine? In explanation he continues, that in this patient there exists an anatomic lesion, an aneurysm of the first portion of the arch of the aorta, which is very favorable for excitation of the pulmonary branch of the vagus. The tachypnea (without air hunger or circulatory or pulmonary impairment) came on coincidentally with bradycardia, and both were relieved by atropine in ten minutes after hypodermic injection.

Pneumonia: H. A. Hare, in the November number of the *Therapeutic Gazette* treats of the bearing of pneumonia, considered as a terminal infection, upon treatment. In June, 1910 he reported his experience as to the importance of studying the relative ratio of pulse rate and blood pressure in the course of croupous pneumonia, and expressed the belief that such observations were of the greatest value in the application of correct treatment. Since then increasing experience with this plan has convinced him still more that it is practically an essential factor not only in treatment but in prognosis as well. It will be recalled that the favorable ratio in croupous pneumonia is one in which the pulse rate per minute is less than the number of millimeters of mercury as shown by the sphygmomanometer. In other words, if the pulse rate be 90 and the blood pressure 120, the patient is doing very well. If the pulse rate be 100 and the blood pressure 110 he is not doing as well as before. If the pulse rate be 110 and the pressure 110 something must be done to bring back the normal difference referred to, and if the pulse rate be 120 and the pressure 110 he is in grave danger, and will probably die unless very active treatment causes him to rally before this abnormal ratio has lasted for any length of time. The fall of pressure may be considered to be the result of the toxemia which directly effects the vasomotor centers or the walls of the vessels themselves, or it may be due to a direct effect on the heart muscle whereby this organ is unable to pump strongly enough to maintain pressure. If the heart be at fault, attention must be directed to that organ. If the vessels be at fault the difference between diastolic and systolic pressure will be marked, the heart, if strong, sending out a forcible wave of blood to fill the blood paths. On the other hand, if the pressure be low from a failing heart, there will be little difference between diastolic and systolic pressure, for obvious reasons. Although he is firmly convinced that the ratio of pulse rate to pressure is a comparatively new sign of great value, he is also equally firmly convinced that it is a fatal error to neglect all those physical signs and states on which we have relied heretofore, and any errors in prognosis or any failure in treatment do not prove that the new sign is useless, but that the human mind is not infallible so far as the physician is concerned, and the patient is not infallible so far as the progress of his disease is concerned. There is no treatment of pneumonia but there is treatment of the patient who has pneumonia and this will vary in every case. In all cases the physician should be a watchman and a therapist in the sense of a drug given only when active need arises.

Bacterial Vaccines: Henry A. Craig, in the *Medical Record* for November 18th, considers autogenous bacterial vaccines in the treatment of diseases. During the past three years bacterial vaccines have been used in thousands of cases and there is getting to be a very extensive literature on the subject. All writers agree that while they have seen cases in which no results were obtained, the cases not being suitable for vaccine treatment, still they have never seen a case in which any bad results were obtained from the use of vaccines. Naturally, there being no foreign serum in a bacterial vaccine there can be no cases of serum sickness, such as often follow the administration of the various sera. In conclusion, although not claiming that the use of bacterial vaccines is a cureall, still for suitable cases it makes a very useful addition to our armamentarium in the treatment of bacterial infections, approaching much more nearly a specific action than any drugs we have for the same cases. It does not interfere with the methods of treatment at present in use and can but add to the effectiveness of the same, being apparently productive only of good. It would be an excellent procedure in every operation upon an infected case such as appen-

ditis, pyosalpinx, cholecystitis, to take cultures at the time of the operation. Then an autogenous vaccine could be prepared in case the subsequent course of the patient necessitates its use, or even given to the patient in cases where trouble seems imminent, in the hope of so increasing his powers of resistance as to make a general infection improbable. The use of bacterial vaccines is not intended to take the place of surgical measures, but it is often a very useful adjunct to surgical measures. The reports of the vaccine treatment in recent medical literature seem almost invariably favorable. Some have obtained excellent results with stock vaccines, and it seems reasonable to expect much better results from the use of autogenous vaccines. The treatment certainly has the promise of a brilliant future, and doubtless will become our mainstay in the treatment of all bacterial infections. Perhaps even some allied form of treatment will conquer cancer which as yet baffles control.

Calcium and Tetany: The *New York Medical Journal* for September 9th, considers the relation of calcium to tetany, especially to the tetany due to parathyroid deficiency, as it continues to excite the interest of both laboratory investigators and practitioners; the latter being interested because calcium seems to have taken a definite place as an important remedial agent in this class of cases. The starting points of these studies seem to have been the statement of Quest (1906) that the calcium content of the brain is lowered remarkably in cases of infantile tetany, the reports of Netter (1907) of very favorable results from the administration of calcium in tetany, and the fact that there are known to be profound changes in calcium metabolism in osteomalacia and rickets, diseases in which tetany occurs. These considerations led MacCallum and Voegtlin, who were not aware that somewhat similar experiments had been performed in the preceding year, 1908, by Parhon and Urechie, to try the administration of calcium salts first to dogs, and then to patients with tetany of parathyroid origin. The remarkable curative results are well known. That part of MacCallum and Voegtlin's work relating to the beneficial effects of calcium in tetany has received abundant confirmation and the use of calcium salts in this condition in man is now well established. While we seem to be no nearer an understanding of the fundamental cause of parathyroid tetany this work has had important practical results. For calcium has been found to be of value, not only in tetany clearly of parathyroid origin, but also in cases of gastric and other forms of the disease. Kinnicut reported a case of gastric tetany promptly relieved by intravenous injections of calcium lactate and Meyer has recently reported (1911) two cases of tetany of pregnancy relieved by the administration of calcium chloride by the mouth. Moffitt in a recent article reports some cases in which calcium lactate was used with advantage: he recommends the intravenous injection of from three to five grams of calcium lactate (forty-five to seventy-five grains) dissolved in from 400 to 500 cubic centimeters of normal salt solution, in severe acute attacks of tetany, whether of post-operative, idiopathic or gastric origin. Large doses by the mouth act favorably, but more slowly. Voegtlin and MacCallum found the subcutaneous injection of calcium lactate to be occasionally followed by extensive edema and necrosis about the point of injection and warn against its administration by this method.

Heart Tonics: Chas. C. Haskett in the November number of the *Indianapolis Medical Journal* writes concerning the comparative dosage of some of the heart tonics. The matter of dosage

can be finally decided only by clinical observation. It is necessary for the physician himself to note the amount of drug required to bring about the desired therapeutic action, but it is obvious that the need of care in avoiding the administration of toxic or lethal doses of the remedy is a serious handicap in arriving at the desired result. To assume that drugs act quantitatively alike on man and the lower animals is unsafe. Not only will one drug have a largely different lethal dose per kilo of body weight for the members of different species of animals, but the ratio of toxicity of two drugs may be different when determined upon the different species. Thus, Gley has shown that the relative toxicity of ouabain and strophanthin as determined upon rabbits is 1 to 2; upon dogs 1 to 3; upon guinea pigs 1 to 4. Certain results, however, which have been secured in laboratory experiments on lower animals are very suggestive when the attempt is made to explain discrepancies between bedside observations and chemical analyses of the preparations used. It was formerly believed that the infusion of digitalis was more efficient than the tincture as a diuretic. It can easily be understood now the different *menstrua* used in these two preparations suggested an explanation for this clinical observation, it being conceivable that the infusion contained the water-soluble active constituents, while the tincture contained the glucosides soluble in alcohol. Earlier chemical investigation seemed to confirm this view, for it was found that digitoxin and digitophyllin were soluble in alcohol, insoluble in water. It has been shown, however, that the presence of an inert glucoside, digitonin, so acts as to cause a suspension or solution of digitoxin and digitophyllin in water, and that the infusion probably contains all of the therapeutically active constituents present in the tincture. It is possible that the infusion contains some water soluble constituents not present in the tincture, but they are found in such small amounts as not to influence the action. Why should these two preparations act differently when used therapeutically? Edmunds was first to suggest a quantitative difference in the doses used. He showed that the ratio of toxicity of the tincture and infusion, as determined on frogs was almost 1 to 6.5 and at that time the commonly used dose of the infusion was equivalent to four times the dose of the tincture. In experiments upon cats Hatcher concludes that a 1% infusion was one-tenth the strength of the 10% tincture, thereby finding the same ratio for cats that Edmunds found for frogs. By a carefully conducted series of clinical experiments Foeke concludes that the infusion represents about 80% of the theoretical value. Whether the disfavor into which digitalin has fallen is due to the comparative inactivity of the glucosides present or to insufficient dose can be settled definitely only by the clinician. Apocynum cannabinum has occasionally acted better than digitalis in cardiac cases accompanied by edema. Indeed, so great has been its diuretic action that the rapid disappearance of dropsical effusions after its use has caused it to be called the "vegetable trocar." Apocynum has essentially the same qualitative action upon the heart that digitalis has and its diuretic action is probably due to the circulatory improvement which it brings about.

Bismuth: In the *International Clinics* (Vol. iii, 21st Series), Edward Wallace Watson in treating of some uses for old drug states, concerning bismuth, that the members of the bismuth group have or seem to have each its own characteristics, and should be used with some discrimination. We have for our use the subnitrate, the subcarbonate, subgallate, salicylate, and betanaphthol bismuth. In diarrheas following the eating of food of doubtful quality, especially proteid foods, which may have contained the toxins of commencing decomposition, the betanaphthol salicylate would seem to be indicated as also in influenzal diarrhoeas. In gastric and abdominal tenderness without diarrhoea, after

a thorough purgation, the subnitrate is best; while in violent diarrheas, intractable cases, and cases of serious diarrhea the subgallate seems to be most efficient. To get the best effect from bismuth, some anodyne should be combined with it. The dose of the opiate may be very small, but without it we will generally be disappointed. Codein in mild cases in one-twelfth or one-eighth grain doses; in more severe cases morphin in similar dose, or paregoric or tincture of opium may be given separately. In gastralgia sometimes very large doses of subnitrate relieve. Externally bismuth has been used in powder and ointment and is especially useful in the eczemas of the gouty. As a snuff in commencing acute coryza combined with boric acid, it will often stop a violent attack at once, and so prevent the bronchitis which so often follows.

Academy of Medicine of Cleveland.

ACADEMY MEETING.

The eighty-seventh regular meeting, being the annual meeting, was held at the Cleveland Medical Library, Friday, December 15, 1911, the President, W. B. Laffer, in the chair.

James F. Jackson, General Superintendent of Charities and Correction of the City of Cleveland, read a paper upon "The Social and Economic Value of Medical Charities" (appearing in full on page 11.)

J. J. R. Macleod, in opening the discussion on Mr. Jackson's paper, said that the questions brought up by Mr. Jackson are very important from the standpoint of medical practice. The Committee on Medical Practice has made no recommendations in regard to medical charity and its abuse because it has felt that the chief point involved is one of correlation. By its symposium the committee hoped to bring to the attention of physicians the fact that the question of the abuse of medical charity is not purely a medical one but that correlation with municipal and semi-private charitable organizations is necessary.

G. W. Crile said that he could very well appreciate Mr. Jackson's paper and the line of endeavor for which he stands. It seemed to the speaker that this problem is best worked out by committees, especially by committees representing the hospitals themselves. He was sure that the hospital with which he is connected is glad to cooperate and has cooperated with other general charities. He felt sure that the Academy, as well as those connected with hospitals, are willing to cooperate in the way suggested by Mr. Jackson. G. W. Crile's motion that the Academy extend to Mr. Jackson a vote of thanks was seconded and carried.

A. S. Newman stated that he had not expected to be called upon in the discussion. He felt that little could be said by way of addition to or in explanation of the statements of Mr. Jackson. He was also afraid that in speaking he might reopen a subject of the meeting of a few weeks ago, a subject which, he understood, was not of too pleasant a nature. He wished to talk in a pleasant way about one or two of these things. He understood that at that meeting some physician read a paper giving statistics in regard to the attendance of Jewish patients at one of the hospital dispensaries. He had himself not gathered any figures. But he did wish to say that there is nothing remarkable about the high proportion of Jewish patients or of the high percentage of such patients who are considered unworthy which Doctor Herrick's paper showed. The explanation lies in the situation of the hospital in a Jewish neighborhood. He referred also to what he termed the religious intolerance expressed in that paper. There should be no objection upon the part of non-Jewish charities to the giving of charity to Jewish people, since the Jews help in the maintenance, through taxes and private contributions, of public and private medical charities. He regretted that because of any imposi-

tion which may have occurred the suspicion of religious intolerance should have arisen. When a sign says "Free Dispensary" the poorly educated foreigner cannot be accused of imposition if he does not understand that the dispensary is only for the needy poor. In regard to cooperation, he said that the Hebrew Relief Association is and always has been willing to cooperate. Concerning the investigation of Jewish families which apply for aid he believed that the investigations have often been made by those who do not thoroughly understand Jewish family relations, customs and language. Imposition in medical and other charities can be overcome only through the collection of funds for the employment of proper investigators. He pledged himself personally to help in such a fund.

J. H. Lowman heartily endorsed everything Mr. Jackson had said. Organized investigation is absolutely necessary. Those who give charity do not always seem willing that the investigation should be by the organized charities; many institutions feel that they can do their own investigating and that they ought to submit only the question of relief. He believed personally that investigation should be in the hands of trained investigators under the charge of a central organization. But the Associated Charities at present have not sufficient funds for thorough investigation. The earlier workers in the dispensaries of the Anti-tuberculosis League felt that they alone could investigate their patients properly; they are not yet convinced that this can be done as well by the Associated Charities. A trained worker is necessary to consider each application from every side and to make a sociological investigation.

F. C. Herrick was under the impression that the dispensary abuse question had been referred to the committee for solution. At Charity Hospital the dispensary patients have come from all classes, from those absolutely needy to such as could well afford payment. He stated in the paper referred to by one of the other speakers that one explanation of the high Jewish proportion was due to the location of the hospital in a part of the city high in Jewish population. It was not his intention to open up any question of religion or of religious intolerance. He believed in the points brought out by Mr. Jackson and felt that the Academy should help in the payment of investigation. It is the duty of the Academy to correct any injustices against any of its members and it should enter into some expense to help overcome such wrongs as may exist.

M. Metzenbaum thought that dispensary abuse can be recognized very readily and corrected just as readily. The visiting of dispensaries by foreigners is due to the natural training received in their home countries and to the artificial tendency created by the advice of ward physicians, school nurses, etc., to visit certain dispensaries. People drift to dispensaries because they are told things which lead them to believe that they can get better service from the dispensary than from the family physician. Correction should be brought about by those same agencies, ward physicians, visiting nurses, etc., which are responsible for the abuse, by discouraging rather than encouraging visits to dispensaries. Investigation also is necessary before any help be given in any case.

James F. Jackson, in closing, thanked the Academy for the opportunity of appearing before it. He realized that we cannot perfect any ideal condition to-day, to-morrow or the next day. Cooperation of medical and other charities is progressing further along daily. It was his belief that we must have confidence in one another, must appreciate each other and must work with each other to find some plan which will seem best. We must find some plan which will be better at least than no plan. He hoped that some time we might work together more than we have in the past. There is no especial plan or scheme to which he was committed, but he wished to work with the medical profession to find some workable plan. The meeting encouraged him in the belief that a proper plan would be found.

Following the discussion upon James F. Jackson's paper the proposed amendments to the By-Laws, prepared and submitted by the Committee on Medical Practice for the regulation and control of contract practice, were placed before the Academy for discussion. A motion to lay the amendments upon the table was lost.

In discussing the amendments J. J. R. MacLeod, Chairman of the Committee on Medical Practice, summarized such information in regard to local conditions as had been received by the Committee and presented the facts gained from the study of conditions elsewhere (appearing in full on page 25.)

S. L. Bernstein raised the question whether the other medical organizations in the city had regulations of similar import and suggested that the regulations offered by the Committee on Medical Practice be offered to the other local organizations for their acceptance.

H. W. Rogers said that he was not in contract practice. He had been a member of the medical profession for 32 years, had a great love for his profession and did not wish to see it do anything which he felt to be wrong. He had seen this matter threshed out and did not believe that it could be settled in any way which did not pay due regard to all the principles of absolute justice of the members of the profession toward each other. Some of the points to which he objected were the retainer fee, the fee bill and the assumption upon the part of committees of the power to determine the eligibility of physicians to membership in the Academy. The retainer fee would become nothing more than a blanket contract and would commercialize the profession. The use of a fee bill was attempted by the old Cuyahoga County Medical Society thirty years ago. Not fifty percent of the members stuck to the agreement. He doubted the legality of the amendments because two committees were to do the work of the Committee of Medical Practice. He felt that a man with a medical education ought to be permitted to say whether he wished to contract his services.

W. O. Osborn, in appealing from the decision of the chair to close the discussion, said that he felt that the matter was so important that it deserved further discussion. A decision should not be reached at this time. The question should be left open, in order that the members of the Academy could present further facts to the Committee on Medical Practice and in order that men who had contracts might have time to so change their contracts, if possible, as to conform with the amendments. He felt that not only might many, who would later see the amendments in a favorable light, vote against them at the present time, but also that some of the members would be forced to give up their membership in the Academy if the attempts at regulation were carried through immediately.

J. E. Tuckerman pointed out that ample time had been given for the submission of information to the Committee on Medical Practice. This committee had gone as far as it could. Further work in regard to the regulation of contract practice would have to be done by committees such as were proposed by the amendments. The year allowed these committees was sufficient for the bringing forward of any further facts which had escaped the original Committee on Medical Practice and for the changing of contracts at present held so that they would conform to the regulations submitted. If further work by the committees showed that the proposed regulations were not feasible the amendments could be withdrawn.

The amendments were declared lost because of the failure to receive the necessary two-thirds vote.

The election of officers for 1912 resulted as follows: President, J. V. Gallagher; Vice President, F. W. Davis; Secretary-Treasurer, J. E. Tuckerman; Trustees, A. F. Spurney and R. K. Updegraff.

J. H. McHenry presented an informal report of the work of the Committee on Arrangements for entertaining the Ohio State Medical

Association. By the rental of space for commercial exhibits such a sum was realized that a balance remained on hand after the payment of all obligations. With this balance there was purchased a projection apparatus which has been given to the Cleveland Medical Library Association to have and to hold for the Academy.

Annual Reports of Officers and Committees.

The **Secretary**, O. A. Weber, submitted the following report for the year 1911:

"This year the Academy has held nine meetings, eight regular and one special. Eighteen papers were presented, six by men from other cities and twelve by local men. Six interesting cases and one specimen were presented during the year. The Secretary takes pleasure in reporting the attendance at the Academy Meetings as follows: the largest attendance at any one meeting was 238; the smallest 40. The average was 134, an increase of 18 over the average attendance for last year.

There has been a conspicuous decrease in our membership due to enforcing Chapter 11, Section 4 of the By-Laws, which pertains to the dropping of members for non-payment of dues.

The membership for 1911 is as follows, the corresponding figures for 1910 being given in parentheses for the sake of comparison: active members, 478 (504); non-resident members, 88 (94); associate members, 53 (98); honorary members, 10 (10); total, 629 (706). During the year there were elected: to active membership, 19; to non-resident membership, 5; to associate membership, 3. The losses in membership were: resignations, 6; deaths, 3; suspensions, 33.

During the year ten meetings were held by the Council, which consisted of: the President, W. B. Laffer; the Vice President, W. W. Holliday; the Secretary, O. A. Weber; the Treasurer, J. C. Darby; N. Rosewater, H. D. Haskins, M. J. Lichty, T. A. Burke, W. B. Chamberlin, R. E. Skeel, O. T. Schultz, W. T. Corlett, C. E. Ford, C. B. Parker, W. E. Lower, C. H. Lenhart, J. J. R. Macleod, L. W. Ladd, Edward Lauder, Torald Sollman, Richard Dexter, J. E. Tuckerman. The Council appointed the following chairmen of the Standing Committees: Membership Committee, Richard Dexter; Program Committee, W. B. Chamberlin; Legislative Committee, R. E. Skeel; Public Health Committee, O. T. Schultz; State Committee on Public Health and Legislation, C. E. Ford.

Among the more important transactions of the Academy and Council may be mentioned the following: the revision of the Constitution and By-Laws; the entertainment of the Ohio State Medical Association; a committee to investigate the evils of dispensaries and of contract and insurance medical work; the suspension of members for non-payment of dues; resolutions asking the State Board of Medical Examination and Registration to raise the standard of their examinations for midwives; a committee to investigate the advisability of extending the scope of the City Bacteriological Laboratory; a committee to the joint conference on Constitutional Convention called by the Municipal Association."

The **Treasurer**, J. C. Darby, reported as follows:

"The treasurer's books were closed and audited on December 12th, 1911. The receipts and expenditures were as follows:

Receipts:

Cash received from former Treasurer W. S. Hobson....	\$ 589.43
Dues for current year (active, non-resident, associate) ..	2,510.50
Delinquent dues	108.75

Total Receipts\$3,208.68

Expenditures:

O. S. Hubbell Printing Co.....	\$450.31
Miss Meier, Assistant Secretary.....	125.00
W. I. LeFevre.....	45.00
Telling Bros.	52.00
J. M. Gasser.....	20.00
Barton Cooke Hirst	28.00
Ohio State Journal	696.00
Cleveland Medical Library Association.....	470.55
Cleveland Medical Journal Co.....	464.00
Horace Carr	98.75
Miscellaneous	50.05

Total Expenditures\$2,500.16

Balance on hand..... 708.52

The accounts of the Treasurer have been audited and found correct:
C. C. Stuart, L. W. Ladd, R. B. Metz, Auditing Committee, January 12, 1911.'

The **Program Committee**, through its Chairman, W. B. Chamberlin, reported as follows:

"Brevity is said to be the soul of wit. Its use does not necessarily render certain medical papers and committee reports witty but does not detract their value. The following report will accordingly be brief.

"During the past year there have been eight regular and one special meeting of the Academy, with six papers presented by men from abroad and sixteen by members of the society. Realizing that the overwhelming majority of the members of this society are not specialists but engaged in the so-called general practice of medicine, it has been the aim and effort of your committee to have discussed topics on the broadest possible range of subjects. During the summer an informal outing was held at Willoughbeach Park, attended by seventy-five members. It is to be regretted that the attendance could not have been larger. Such occasional gatherings go far toward stimulating a better feeling of good fellowship and give opportunity for better acquaintance than is afforded by the usual gatherings.

"At least two innovations have been inaugurated since our last annual meeting. (1) There have been not infrequent meetings of the committee as a whole, attended by the secretaries of the various sections and the chairman. Here the program of the sections, as well as those of the general academy meetings, have been informally discussed; it is hoped with no little resulting benefit. (2) Return postal cards have been sent to every academy member asking for his cooperation in the meetings. The response to these cards has been fairly generous and the burdens of your committee correspondingly lightened. The papers volunteered have been utilized as far as possible, a considerable number being still on hand for use of the incoming committee. As previously, the January meeting has been planned so the new committee may not feel itself immediately embarrassed.

"Your committee wishes to avail itself of this opportunity to thank the members for their cooperation in rendering possible whatever success it has merited."

Reports of the various **Sections** (condensed):

	Clinical and Experimental Pathological Medicine	Ophth. and Oto-Lar.	Veter- inary	Medico- Legal.
Meetings	8	5	8	2
Total Attendance.....	839	288	120	74
Average Attendance.....	105	57	24	9
Papers Read	32	14	24	7

The report of the **Milk Commission** of the City of Cleveland for 1911, presented by the Secretary, J. J. Thomas, was as follows:

"This report will include: (1), A description of the plant and equipment of the Walker-Gordon Company at Novelty, Ohio, and the conditions under which certified milk is produced. (2), A review of the tuberculin, bacteriological and chemical tests will be made for the year. (3), The monthly inspections by the Veterinarian and the system of medical supervision of the employees will be described. (4), The work of the Commission, the general subject of certified milk and the problems connected with its production during the past year will be briefly discussed. (5), A copy of the original contract of the Commission with the Walker-Gordon Company will be appended to this report for the benefit of those not familiar with the requirements and standards of certified milk.

"To some a description of the equipment of the Walker-Gordon Company farm at Novelty, Ohio, is unnecessary as it is always open for inspection and many have availed themselves of the privilege of visiting it. Sanitarians, physicians, students and nurses are particularly welcomed by the management and every courtesy possible is shown all visitors.

"There are two main stables 120 by 60 feet, each accommodating 60 cows. Cleanliness and adequate ventilation are special features and the general construction of these buildings conforms to the requirements and standards of the best dairy farms. There has recently been constructed a two-story milk-house situated about 200 yards from the nearest barn and connected with it by wire cable, by means of which the milk may be rapidly carried to the cooler, where it is cooled to 35° F. within 15 minutes from the time of milking; in the milk-house the milk is also bottled, sealed, placed in boxes, iced and may be loaded directly on the freight car for shipment to the city.

"The herd of 90 to 100 cows is made up of various breeds—Guernseys, Holsteins and Jerseys, some of pure blood and some mixed. They are curried twice per day, the flanks and udders are clipped and the latter wiped off with a damp cloth just before milking, a separate cloth being used for each cow.

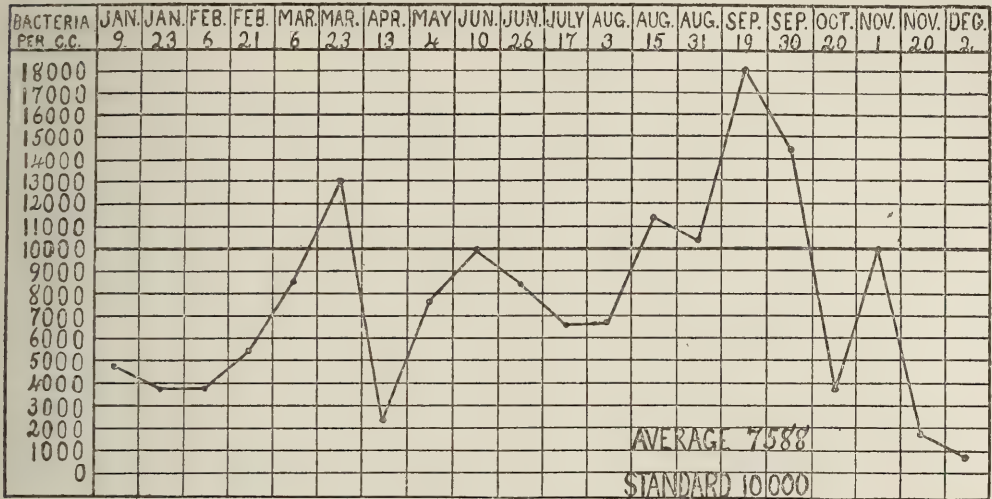
"Three or four streams from each teat are milked into a special pail and discarded, as the foremilk contains a high bacterial content.

"The milk pails are washed, rinsed and sterilized and the employees are required to be in sound health, to have clean hands and to be dry milkers. Special suits and caps, which are washed daily, are worn when milking. While milking, the men are supervised by a foreman or the superintendent and their technic is watched closely. This is a crucial point, as any laxness on the part of the men is followed by contamination of the milk, which in turn is revealed by the bacteriologic tests. While these contaminations need not be considered as serious they are bound to occur occasionally, especially when new employees are being "broken in." Vigilance on the part of the superintendent must therefore be doubled at such times.

"No cows are added to the herd until they have been examined and tuberculin tested by the Veterinarian and a re-test is made by him six to eight weeks later, double the original dose of tuberculin being used. Besides these two tests an annual test is made of the entire herd.

"The latter has always revealed some 'reactors.' One year ago two per cent reacted positively. The last test made a few weeks ago gave four positively reacting cows out of 134 tested (three per cent). These four cows were all killed. Following the annual tests the stables, stalls, and stanchions are thoroughly scrubbed and disinfected under the supervision of the Veterinarian. The necessity of re-testing the entire herd again in six months is being considered and it is hoped by so doing to reduce still further if not entirely eliminate, tuberculosis from the farm.

"Twenty bacterial counts were made by the Bacteriologist during the past twelve months. The highest count for the year was 18,000 (September 19), the lowest 864 (December 2). Five counts were above the 10,000 standard (25%). Two (ten per cent) were exactly on the line and thirteen (65%) were under 10,000. The average for the twenty counts was 7,388. (See chart.)



"The four high counts occurring August 15, August 31, September 19 and September 30 were considered to be due to wet milking, as several new employees were added to the milking force about that time. It became necessary also to make a change in the personnel, in that it was found wise to replace the one in charge of and supervising the milking and it is hoped and expected that as a result of this change a substantial reduction in next year's bacterial counts will be made. The last two counts, obtained under new supervision, have been very encouraging in this respect.

"The temperature of nineteen specimens tested varied from 39° F. to 49° F., average 44.5° F.

"The chemical examinations have been made by Doctor H. D. Haskins of Western Reserve University. Three tests have been made, revealing on February 20, Fat 3.6, Sugar 4.6, Proteids 3.3, Salts 0.86, Ash 0.66, Specific Gravity 1.033, Total Solids 12.55; on September 6, Fat 3.82, Sugar 4.4, Proteids 3.05, Salts 0.84, Ash 0.64, Specific Gravity 1.0323, Total Solids 12.4; on December 15, Fat 4.9, Sugar 4.65, Proteids 3.35, Salts 0.88, Ash 0.68, Specific Gravity 1.033, Total Solids 13.9.

"The chemical examinations always include a search for preservatives, coloring matters and adulterations.

"The Veterinarian's duties include, besides the examination and testing of cows, a *monthly inspection* at which time a general report on the herd is made; the condition of the stables, dairy building and other buildings is noted; and particular attention is given to the care and cleanliness in milking, to the utensils, to the feed, and to the health of the employees.

"A report by the Superintendent is made weekly to the Commission on the three following questions: (1), Are any of the men handling milk at your farm ill with any communicable disease? (2), Is there any communicable disease in the families with which they are connected? (3), Have any been in contact with any communicable disease and then been excluded from the milking place? On the back of the card containing these questions is an explanation defining the term 'communicable disease,' also a warning that a sore throat may be diphtheria, etc.

"The Commission feels keenly the loss of one of its members. The

late Doctor Edward F. Cushing gave unstintedly of his time and council in the early days following the Commission's organization and continued taking an active interest in its plans and problems up to within a few days of his death.

"A special meeting of the Commission was called April 10, at which resolutions were drawn up expressing the Commission's loss, appreciation of Doctor Cushing's services and sympathy for his family. It was ordered that a copy of the resolutions be inscribed upon the records of the Commission and sent to Mrs. Cushing.

"Doctor H. J. Gerstenberger was appointed to the vacancy caused by the death of Doctor Cushing.

"The Secretary and Assistant Secretary, delegated to represent the Commission at the annual meeting of the Certified Medical Milk Commission held at Philadelphia, May 23 and 24, report an interesting and profitable meeting. Of the notable papers heard, special mention should be made of the address of Doctor George L. Baker of San Francisco, on "A History of the Control of Tuberculosis in Certified Herds," and of the paper, "A Microscopic Test for Heated Milk," by Doctors Ravenel and Frost of the University of Wisconsin.

"Four half-day sessions were attended, the second being a joint session of the American Association of Medical Milk Commissions and the Certified Milk Producers Association of America. The general topic discussed was "The Milk Commission as a Factor in a Clean Milk Supply." A special feature of the trip was the opportunity of attending the lectures and exhibition of the Philadelphia milk show.

"The demand for certified milk does not appear to be increasing, the daily output varying between 800 and 900 quarts, but our producers report a substantial increase in the modifications put up at their laboratory, the same milk (in bulk) being used as that to which Commission is certifying.

"A special meeting of the Commission was called September 1, 1911, at which a milk product known as Casein milk was discussed. Samples of the milk were exhibited and a committee was appointed consisting of Doctors J. J. Thomas and H. J. Gerstenberger to investigate further and report upon this product.

"The Commission is very glad to be able to report that in the future full credit and official recognition will be given the Walker-Gordon Company for tuberculin tests made by our Veterinarian, thus enabling our producers to demonstrate that their equipment, methods of handling and results are worthy of the highest scoring. This has been brought about through the cordial relations existing between the Commission and the City Veterinarian."

Agreement Between the Milk Commission of Cleveland and The Walker-Gordon Company of Cleveland, Ohio.

The following agreement made this third day of December, 1907, between Mr. Samuel Mather, Dr. E. O. Adams, Dr. Hudson D. Bishop, Dr. E. F. Cushing, Dr. S. W. Kelley, Dr. H. H. Powell, and Dr. J. J. Thomas, parties of the first part: That the party of the second part hereby binds itself to a fulfillment of the provisions of this contract, for and in consideration of the benefits hereinafter named by the parties of the first part.

SECTION 1. The party of the second part hereby agrees to conduct such parts of its dairy as may be hereinafter named, collect and handle its products in conformity with the following code of requirements.

The milk and cream thus produced shall be known respectively as "Canfield's Certified Milk" and "Canfield's Certified Cream." They shall be designed especially for clinical purposes, and when at any time the demand shall be greater than the supply, the preferred purchasers shall

be residents of Cuyahoga County desiring certified milk or cream for infant feeding or the diet of the sick.

SEC. 2. The parties of the second part further agree to purchase and to use, subject to direction, the necessary caps for closing bottles of certified milk and cream from the parties of the first part, paying therefor not more than \$5.00 per thousand.

SEC. 3. The parties of the first part agree to appoint a chemist, a bacteriologist and a veterinary surgeon, who shall examine and inspect the dairy and the aforesaid certified milk and cream.

SEC. 4. The following are the examinations to be made for the parties of the first part, at such times as in their judgment is desirable, including a statement of the probable frequency of said examinations:

(a) A physical examination and tuberculin test of each animal to be added to the herd.

(b) An annual examination and tuberculin test of all animals in the herd, exclusive of stock under six months of age.

(c) Inspections of the herd, dairy buildings, and care of the milk. These inspections shall be made without previous warning, at intervals of one month, unless, at the discretion of the parties of the first part, such frequency is unnecessary in cool weather.

(d) Bacteriologic examinations of certified milk and cream at intervals of one month.

(e) Chemical examinations of the certified milk and cream at intervals of two months.

SEC. 5. The following supplementary examinations may prove necessary from time to time.

(a) Additional bacteriologic and chemical examination of certified milk and cream when the regular examination indicates a product failing to reach the standards set by the parties of the first part.

(b) Additional inspections of the production and handling of certified milk and cream by any or all of the experts of the parties of the first part under similar circumstances.

SEC. 6. The above examinations and inspections, both regular and supplementary, are made for the parties of the first part by their experts. The parties of the first part pay for all examinations ordered by them, but the parties of the second part hereby agree to reimburse the parties of the first part for all examinations and tuberculin tests of animals added to the herd in the intervals between the succeeding annual examinations, and for any inspections, chemical or bacteriologic examinations made necessary by a failure to reach the standards set for certified milk and cream.

SEC. 7. The veterinary inspector shall, at intervals specified above (Sec. 5-c), and without previous warning to the dairy, inspect the cleanliness observed in milking, the care of the various utensils employed, the nature and quality of the food used and all other matters of hygienic nature bearing upon the health of the cows, and the cleanliness of the milk, including also as far as possible an inquiry into the health of the employees on the farm. He shall also see that no animals are admitted to the herd without his approval.

SEC. 8. The bacteriologist shall procure a specimen of the milk from the dairy or preferably from the delivery wagons, at intervals to be determined by the parties of the first part, but in no case at a longer interval than one month. The exact time shall be without previous notice to the dairy. He shall test this milk for the number and nature of the bacteria present in it, to the extent which the needs of safe milk demand. He shall also make a microscopic examination of the milk for pus cells. Milk free from pus and injurious germs and having not more than 10,000 germs of any kind or kinds to the cubic centimeter shall be considered to

be up to the required standard of purity. Samples of certified cream shall be similarly secured and examined. For cream the bacteriologic standard shall be 30,000.

SEC. 9. The chemist shall, in similar manner, procure and examine the milk for the percentages of proteid, fat, sugar, mineral matter and water present. He shall also test its chemical reaction and specific gravity, and shall examine it for the presence of foreign or other matters, or of chemicals added as preservatives. Certified milk shall range from 1.029 to 1.034 specific gravity, be neutral or very faintly acid in reaction, contain from 3 per cent to 4 per cent proteid, and from 3.50 per cent to 4.50 per cent sugar, 3.75 per cent to 4.25 per cent fat, and shall be free from all contaminating matter and from all addition of chemical substances or coloring matters. Milk shall not have been subjected to heat before the examination has been made, nor at any time unless so announced to the consumer.

The fat percentage of certified cream shall be 20 per cent, and it shall not vary more than two per cent from this standard.

SEC. 10. Under ordinary circumstances bacteriologic and chemical examinations of certified milk and cream are not made, unless at the discretion of the parties of the first part, until a satisfactory report of its production and handling has been received from the veterinarian.

SEC. 11. Upon the failure of any sample of certified milk or cream, secured by the experts of the parties of the first part for examination, to reach the standards here outlined, a second sample shall be promptly secured for a repetition of the examination, and not until a second report has been received confirmatory of the results of the first shall the examination be held to indicate a product not reaching the standards of the parties of the first part. Upon receipt of such proof of a failure of technic in production or distribution, the veterinarian or other experts of the parties of the first part shall co-operate with the dairy officials in search for these errors.

SEC. 12. Having received reports from their experts that the production and handling of Canfield's certified milk and cream is being carried on in a satisfactory manner, and that the product conforms to their chemical and bacteriologic standards, the parties of the first part shall issue to the parties of the second part a certificate or certificates to this effect, for display in appropriate places.

Further, the parties of the first part shall keep a mailing list of physicians, including at least all those who may request it, to whom information shall be sent when the milk produced by the parties of the second part fails to reach the standards set or to be produced under the conditions herein set forth. Provided also that similar notice be given when conditions are corrected.

LANDS.

SEC. 13. It is hereby understood and agreed, that the lands used by the owners, agents or assigns of the dairy, conducted by the party of the second part and employed for pasturage, or any lands, that may be hereafter acquired for such purposes, or such land as may be used for the cultivation of hay or fodder, shall be subject to the approval of the parties of the first part.

SEC. 14. Said lands shall be kept in a condition of cleanliness and order, and upon lands in the neighborhood of the dairy buildings, or lands used for paddocks or pastures, loose dirt, rubbish, decayed vegetable or animal matter or animal waste shall not be allowed to accumulate. Neither shall there be upon such lands any constantly wet or marshy ground or stagnant pools of water.

THE BUILDINGS, THEIR SURROUNDINGS, CONSTRUCTION AND CARE.

SEC. 15. It is also understood and agreed that the stables and other

buildings used in the production of certified milk shall be erected in desirable locations and constructed after the most approved plans with reference to the following points:

- (a) Proper drainage.
- (b) Adequate lighting, providing not less than four square feet of windows, with east, south or west exposures, for each cow.
- (c) A ventilating system according to approved hygienic methods.
- (d) The prompt and easy removal of waste products and freedom from accumulation of dust and mold.
- (e) Any other points of construction or location insofar as these may affect the health of the certified herd or the character and condition of the milk.

SEC. 16. Nor shall there be kept within 300 feet of any building used for dairy purposes, any fowls, hogs, horses or other live stock.

SEC. 17. The waste products of the stable shall be removed so frequently, and the stable floor so thoroughly cleaned, that the same shall be as free as possible from animal odors.

WATER SUPPLY.

SEC. 18. The dairy shall be supplied with an abundance of pure water. No water from wells or springs located within 300 feet of the stable or other buildings housing animals or containing animal waste or material affecting the purity of water shall be used for watering stock, cooling milk or cleaning vessels. Furthermore, all such wells and springs shall be fully protected from surface drainage.

SEC. 19. It is hereby understood and agreed that the milk and cream shipped from the dairy of the party of the second part under the designation "Canfield's Certified Milk and Cream" shall be the product only of cows stabled and pastured in barns and on lands conforming to the requirements of the parties of the first part, and meeting the approval of said parties and their experts.

SEC. 20. Further, that the following shall be sufficient reasons to exclude any animal from the certified herd:

- (a) Absence of proof by physical examination and tuberculin test of freedom from tuberculosis.
- (b) Fever.
- (c) Septic absorption or other disease, following or associated with parturition.
- (d) Mammitis or mammary abscess.
- (e) Persistent diarrhea or any other abnormal physical condition, which could in any way be detrimental to the character of the milk.
- (f) Ill health of any kind prejudicial either to other animals in the herd or to human health.
- (g) A period of nine weeks before calving and six days after parturition.
- (h) A state of excitement either as a result or during the period of extrux, or nervousness caused either by beating, whipping, kicking, prodding or running.

SEC. 21. Such excluded animals shall not be allowed to mingle with the herd and no use detrimental to the health of the herd shall be made of their milk upon the farm nor shall their milk be shipped from the farm.

SEC. 22. It is also understood and agreed that the party of the second part shall exclude from the herd used for producing certified milk and certified cream, immediately after discovery, any animals bred by said party subject to the following conditions: Any animal that was not, as a heifer, kept sterile during its first 27 months, any animal that was bred through consanguinity within a period of three generations.

SEC. 23. It is furthermore agreed, that the dairy stock employed in the production of certified milk shall be housed in buildings and kept under surroundings provided above, shall have at all times proper exercise in the open air; that they shall be properly sheltered from the influences of weather and climate prejudicial to their health; also that the animals shall have the hair of the flank, side and udder closely clipped, be kept clean, groomed every day, and treated kindly at all times.

FEEDING.

SEC. 24. It is hereby understood and agreed that the methods of feeding the cows furnishing certified milk shall be subject to the approval of the parties of the first part. No materials shall be employed which are or may become injurious to the health of the animals, or that will produce an impoverished milk, or that will impart to it unnatural odors or flavors. Nor shall the cows be allowed to eat green or wormeaten fruit, poisonous weeds, or to drink poisonous or stagnant water.

SEC. 25. The apartments used for the storage of either feed or fodder shall be removed from possible contamination by stable waste or animal odors.

THE MILKERS AND CARETAKERS.

SEC. 26. No persons who are suffering from any communicable disease or who have come in contact with others having contagious or infectious diseases shall be allowed to act as milkers or herdsmen, or to come in contact with the certified herd or its product in any other manner.

SEC. 27. The person or persons engaged in milking shall be dressed in clean overclothes and caps, and shall, before milking, first wash their hands, using soap and nail brush, and afterwards thoroughly rinse the hands in clean water, and dry them.

SEC. 28. The milk pails, coolers, bottles and all other utensils used for milking or coming in contact with milk shall be of a pattern approved by the parties of the first part, and shall before being used be cleaned by hand separately with the aid of hot water, alkaline soaps and steam. After thorough rinsing in hot water they shall be heated to a temperature adequate to effect complete sterilization, and shall be kept removed from possibility of contamination in a dry, odorless atmosphere until used.

SEC. 29. In preparation for milking, the cows, in addition to the general care provided above (Sec. 24), shall have all loose dirt brushed from flank and side, and shall have flank, side and udder washed with clean water, using a separate cloth for each cow. Further, a small amount of foremilk shall be discarded.

SEC. 30. No milk shall be represented as certified milk that has been drawn from the animal at abnormal hours, such as midnight or noon.

SEC. 31. No milk shall be represented as certified milk that does not consist of the entire contents of the udder at each milking, excluding only a small amount of foremilk.

It is furthermore agreed that no milk shall be represented as "Certified Milk" that has been changed or reduced in any way, by the addition of water or any solid or liquid substance, in or out of solution, or the subtraction or removal, in any manner, of any part thereof.

CARE AND BOTTLING OF MILK.

SEC. 32. It is hereby understood and agreed that all milk represented as "Certified Milk" shall receive every known detail of care that will promote its keeping qualities, and favor its safe transportation.

SEC. 33. No milk shall be represented as certified milk that has not been passed through a sieve of wire or other cloth, either while milking or immediately thereafter, having not less than one hundred meshes to the linear inch.

SEC. 34. That the milk on being drawn from the cow shall imme-

diately be cooled by a method approved by the parties of the first part, reducing its temperature to a point not above 42 degrees or below 38 degrees Fahrenheit as it leaves the cooler, while being held for shipment, during transportation and until its delivery to the purchaser the temperature shall not exceed 50 degrees Fahrenheit.

SEC. 35. It is furthermore agreed that, after cooling, certified milk shall be bottled expeditiously by a method approved by the parties of the first part at an average time of 15 minutes after milking. The bottles after being filled shall be closed with caps furnished by the parties of the first part and further protected by parchment circles having upon them the name of the dairy and the next day's date as the "Date for Delivery."

SEC. 36. After bottling, while awaiting transportation, and during transportation, certified milk shall be guarded against an undue rise of temperature by being kept in refrigerating rooms or in shipping cases packed in ice.

TRANSPORTATION AND DISTRIBUTION.

SEC. 37. It is hereby understood and agreed that the transportation and distribution of certified milk shall be conducted by the party of the second part or by persons acceptable to the parties of the first part. No certified milk shall be delivered as such more than 36 hours after milking or 24 hours after its arrival in the city.

SEC. 38. That in transit the milk shall not be exposed to any of the foregoing prohibitory conditions:

- (a) That it shall not be subjected to agitation.
- (b) That it shall not be exposed to the heat of the sun.
- (c) That the delivery wagons shall be so constructed that the required temperature of the milk may be maintained during transit.
- (d) That before the wagons are filled for shipment the body, the trays, and compartments shall be flushed with boiling water.

SEC. 39. It is furthermore agreed that the distributing agents, during the transfer of the milk to the purchaser, should be subject to the following restrictions:

That they shall use no tobacco, that they shall take no intoxicating drinks, that they shall not collect the empty containers nor receive money or milk checks from houses in which a communicable disease is known to exist.

SEC. 40. It is also hereby agreed, that the collection of empty bottles from places where infectious or contagious diseases are known to exist, shall be made by other persons than those employed to deliver the milk. Further, that before these empty bottles shall be returned to the dairy, they shall be carried to a separate building and first be subjected to the process of cleaning indicated in a former clause of this contract.

IN CONCLUSION.

SEC. 41. It is hereby understood and agreed that if any further precautions or changes in method, calculated to improve the quality of milk, or guard the same from impurities or dangers, are desired, that the party of the second part will cheerfully be governed by such additional rules and regulations as may be laid down by the parties of the first part.

SEC. 42. It is furthermore agreed by the party of the second part, the same binding the owners, agents or assigns of the aforesaid dairy, that in the event of failure to comply with any or all of the specific requirements of the foregoing contract, the parties of the first part shall reserve the right to withdraw from the contract, and publish the fact in such manner as they deem best.

SEC. 43. It is furthermore understood and agreed by and between the parties hereto, that either shall be at liberty to cancel this agreement

by giving two months' notice in writing, of a desire to do so, in case of inability for any reason to comply with the terms of the same.

IN WITNESS WHEREOF, the said parties have hereunto set their hands, the day and year first written above.

COUNCIL MEETING.

At a meeting of the Council of the Academy of Medicine of Cleveland, held Friday, December 22, 1911, a communication from Prosecutor Cline was read.

It was moved, seconded and carried that the Secretary be instructed to write Prosecutor Cline asking ways and means to aid him in wiping out the illegitimate medical shops which seem to infest the city.

A communication from the American Medical Association asking that the Academy's programs be mailed them was read. It was moved and seconded that the American Medical Association be put on the mailing list. Carried.

A communication from Dr. Barhrenburg concerning the appointment of a successor to Surgeon-General Wyman was read.

It was moved and seconded that the Secretary telegraph the President of the United States that it is the opinion of the Academy that the Surgeon-General should be appointed from the Marine Hospital Service. Carried.

The Treasurer read the names of those suspended for non-payment of dues.

CLINICAL AND PATHOLOGICAL SECTION.

The eighty-second regular meeting of the Clinical and Pathological Section was held at the Cleveland Medical Library on Friday, January 5, 1911, the Chairman, Henry L. Sanford, in the chair.

J. G. Spenzer exhibited a specimen from a case of cyanide of potassium poisoning. The stomach showed the characteristic reddening produced by this poison and was markedly corroded; the stomach contents were strongly alkaline. The individual had died in extreme opisthotonus.

G. I. Bauman presented a report upon a case of chronic deforming arthritis developing during the course of a tuberculous infection of the ankle (appearing in full on page 33).

O. T. Schultz showed microscopic preparations from a case of acute anterior-poliomyelitis and from a case of Addison's disease associated with complete amyloid infiltration of both adrenals. (A more detailed report of the second case appears on page 40).

F. J. Geib, in the discussion upon the case of Addison's disease, stated that the fluid obtained by repeated tappings of the chest and abdomen while the patient was in the City Hospital had never had the chylous character noted in the fluid while the patient was in the Lakeside Hospital.

John Phillips read a report of a case of phlebitis migrans (to appear in full later).

R. W. Elliott reported a case of estivo-autumnal malaria and demonstrated blood preparations showing unusually large numbers of the crescent form of the parasite. The infection had been contracted in North Carolina. The earliest manifestations of the disease were of such a nature that a diagnosis of meningitis was made. Examination of the blood after the patient reached Cleveland revealed large numbers of parasites and the administration of quinin was followed within two days by the transformation of the asexual organisms into the crescentic sexual forms.

O. T. Schultz, in the discussion, called attention to the effect which quinin may have in transforming the asexual parasites into the early sexual forms, to the resistance of the latter to the drug and to the fact that parthenogenesis of the macrogametocytes, after a period of dormancy in the spleen and bone marrow, may give rise to a new generation of asexual parasites and a clinical relapse.

R. K. Updegraff asked in regard to the action of "606" in malaria and recalled a case in which "606," administered after the patient had passed from his own observation, was said to have been followed by results which were described as magical.

W. I. LeFevre showed a series of lantern slides illustrating the beneficial effects of the Roentgen rays upon a variety of skin affections. In blastomycosis, seborrheic eczema, chronic simple eczema, ring worm, favus of the scalp, etc., healing was rapid and the result obtained was better than that yielded by any other method of treatment. In lupus the results were not so good. In epitheliomata of the face the X-rays offer a better form of treatment than any other procedure; epitheliomata nearer the center of the face yield more promptly and certainly to treatment than those more posteriorly situated; some cases have remained apparently healed for six years; previous treatment by some other method appears to interfere with the beneficial action of the X-rays.

MEDICO-LEGAL SECTION.

The third regular meeting of the Medico-Legal Section was held Friday, December 22, 1911, at the Cleveland Medical Library, R. B. Newcomb in the chair.

Benj. A. Gage presented a paper upon "Privileged Communications Between Physician and Patients" (to appear in full later). The discussion was led by Alfred Clum and H. G. Sherman.

The following were elected officers for 1912: Chairman, J. S. Tierney; Vice Chairman, Alexander Hadden; Secretary, F. B. Gott.

The Cleveland Medical Library Association.

The annual meeting of the Cleveland Medical Library Association was held at the Library on Monday, December 11, 1911.

The Secretary, Henry L. Sanford, submitted the following report:

"Since the last annual meeting of the Association, held on December 12, 1910, the Council has held eight meetings. At the first Council meeting of the year the President, C. B. Parker, announced the committees for 1911, the names of the Chairmen of which follow: House Committee, J. F. Hobson; Library Committee, C. A. Hamann; Finance Committee, B. L. Millikin; Membership Committee, S. H. Large. The Entertainment Committee and the Committee on Historical Collections are sub-committees of the House Committee and are appointed by its Chairman. The total membership of the Association is at present 250, as against 245 for 1910. The membership is divided as follows: honorary 2, subscribing 55, active 187, non-resident 5, reading 1. The gain in new subscribing members was 1, in new active members 25, a total gain of 26. The losses were: deaths 5, resigned and dropped 14, never qualified 2, a total loss of 21, the net gain in membership being 5. Your Secretary regrets to record five deaths during the year, those of E. F. Cushing, A. R. Baker, F. C. Taylor, H. Pomeroy and B. Anderson. The Necrology Committee of the Council took appropriate action in each instance by sending flowers and resolutions of sympathy to the families."

The report of the Directing Librarian, C. A. Hamann, showed the number of books in the library to be 18,508, including Reports, Transactions and Journals. Pamphlets, Reprints and Dissertations number 9,311. During the year there had been purchased a total of 229 volumes, and in addition 250 volumes of journals were bound and placed on the shelves. There were loaned to members 890 books; this is an increase of 227 over the previous year. Received from donors, 705 volumes, of which 52 were new books which had been sent to *The Cleveland Medical Journal* for review, and after reviewing were given to the library; 44 unbound complete volumes of journals; 457 numbers of various journals; and 502 pamphlets. Complete files of the Journal of Laryngology (British), *Verhandlungen der Deutschen Gesellschaft für Chirurgie* and the Transactions of the Edinburgh Medico-Chirurgical Society have been purchased. Twenty-six new journals were added to the list, so that the library is now in receipt of about 300 different periodicals; some of these come through the courtesy of *The Cleveland Medical Journal* in exchange.

The report of W. E. Bruner, Treasurer, showed receipts from all sources to the General Fund, \$5,278.16, and expenditures, \$4,712.11. Of the latter amount \$1,056.05 was spent for journals and binding. In the New Book Fund, receipts from all sources were \$860.83, expenditures \$523.79.

The Report of the Chairman of the Finance Committee showed invested funds to the amount of \$8,008.07, drawing interest at five and one-half and six per cent; also the Rosenwasser Special Book Fund of \$10,000, drawing slightly less than six per cent. Interest from these sources amounted to \$775.68 for the year.

Announcement was made of the winners of the prizes offered in the early part of the year for the best essays on any clinical subject in general medicine, surgery or obstetrics. J. L. Bubis received the first prize of \$100, the title of his essay being "On the Premature Separation of a Normally Situated Placenta." V. C. Rowland received the second prize of \$50, his subject being "Undescended Testes."

The number of visitors registered during the year, 1,189, shows an increase of 289 over last year.

The officers of the Association, re-elected for 1912, are: C. B. Parker, President; B. L. Millikin, Vice President; W. E. Bruner, Treasurer; H. L. Sanford, Secretary; C. A. Hamann, Directing Librarian.

Book Reviews.

The Origin of Life. By H. Charlton Bastian, M. D., F. R. S. With 10 plates containing numerous illustrations from photomicrographs. G. P. Putnam's Sons, New York and London, 1911.

This book, as noted by the author, was refused by the Royal Society, and was accordingly brought out by a commercial publisher. The subject is spontaneous generation, and the book is a resume of former work done in the early seventies of the last century, before the development of bacteriology, together with a new set of experiments performed in more recent years, supposedly with the aid of the new knowledge.

In writing a review of a book of this sort one is divided in mind between pity for an old man who believes in the results of a series of experiments performed in an unscientific manner, with a very sketchy idea of the living elements with which he is dealing, and astonishment that the publishers should have permitted such a farrago of nonsense to get a place in their Science Series along with work by men such as Metchnikoff, Lombroso and Minot. The author believes that he has proved that in heated solutions of certain inorganic salts he has obtained the development of new life after a variable interval, and urges in support of his experiments other observations of his own along the line of

heterogenesis in which he claims to have seen the development of one form of protozoon from another with great frequency. According to his own statements the greater part of the observations were made with a one inch objective and a number six ocular, some of the later ones, however, being made with a quarter inch objective and the same ocular. When one considers that questions of microscopic life require the one-twelfth inch objective and high oculars, it is clear that the evidence of what is seen through the microscope is of little value in the present series. As a corollary to conclusions based on such observations, one may feel that it is not improbable that other parts of the experiments were equally lacking in scientific accuracy, and that this revival of the old pre-bacteriological theories of spontaneous generation is of the same character as former reports.

In fact, the only reason for an extended review of the attempted resuscitation of a long mouldered corpse is the very fact that its publication in a series with articles by well known and highly esteemed scientific men will tend to engender in the minds of the laity a belief that this article too must be authoritative. It seems probable that the other authors in this collection will protest against the introduction of fiction into a science series, and with full justification. R. G. P.

Nephritis, An Experimental and Critical Study of its Nature, Cause and the Principles of its Relief. By Dr. Martin H. Fischer, Eichberg Professor of Physiology in the University of Cincinnati. The 1911 Cartwright Prize Essay of the Association of the Alumni of the College of Physicians and Surgeons, Medical Department of Columbia University, New York. Large 12mo, ix and 203 pages, 31 figures, including a colored plate, cloth, \$2.50 net. John Wiley & Sons, New York, 1911.

This is the second of the two essays for which the author was awarded prizes within the last two years. In accordance with the general arrangement of the subject matter this review will be divided into two parts: (a), the cause and nature of nephritis and (b), therapy.

(a), The Cause and Nature of Nephritis: The author states the cause of nephritis as follows: "All the things that characterize nephritis are due to a common cause—the abnormal production or accumulation of acid in the cells of the kidney. To the action of this acid on the colloidal structures that make up the kidney are due the albuminuria, the specific morphological changes noted in the kidneys, the associated production of casts, the quantitative variations in the amount of urine secreted, the quantitative variations in the amounts of dissolved substances secreted, etc." This statement constitutes the general conclusion placed at the beginning of the essay, but as one reads on to the finer conclusions, he becomes convinced that the author really does not intend to have his general statement regarded seriously. For instance, one finds that alkalis (pp. 41 to 43) and perhaps enzymes (p. 197) produce exactly the same pictures experimentally as acids do, and finally, in his concluding paragraph (p. 197), the author doubts if acid is the only causative factor.

The kidney, physicochemically, is regarded as a three phase system of colloids; that is, a solid colloid (the wall of the uriniferous tubule) is interposed between a liquid colloid (the blood) on the one hand, and a solution containing some colloids (the urine) on the other. In the presence of water and acid the solid colloid (uriniferous tubule) swells, according to the former work of the author on edema (Oedema: Wiley & Sons, 1910). What therefore happens in nephritis is an edema of the kidney. In this conception of edema, however, the author has been challenged by Goodridge and Gies (*Proc. Soc. Exp. Biol. and Med.*, 1911, VIII, 106). These authors immersed fibrin (a colloid) in colloids (milk, blood, meat juice, gelatin, white of egg), thereby imitating conditions in

the body, and added 0.2 to 10.0% hydrochloric acid to the mixtures, but observed no swelling until enough acid had been added so that there was *free* acid in the mixture. Even though the mixtures contained available water and were acid to litmus no swelling took place so long as the acid was in the *combined* state. This is quite important. Fischer immersed fibrin, gelatin and agar agar directly in free hydrochloric acid, using very excessive quantities of the latter. He would scarcely contend that edematous tissues contain free acid. It seems that the fundamental experiment performed by Gies in accordance with the author's idea of the relation of colloids to edema is more correct than that of the latter and the results do not justify any conclusions as to the swelling of tissues. It may also be added that Gies observed alkalies to act in precisely the same manner as acids; and, sometime previously, Berg and Gies had shown that enzymes act like either free or combined acids or alkalies.

Fischer's conception of the kidney under normal and pathological conditions is so at variance with generally accepted views that it would require unlimited space to discuss all the points of divergence. Some of the more important statements which cannot go unchallenged should receive mention, even at the risk of imposing upon the reader's patience. One must doubt that "acid in the kidney lies at the bottom of every albuminuria" (p. 20). The albuminuria following the injection of egg albumin must be an exception to this statement, and there might be others. Moreover, the author nowhere records the actual demonstration of acid in either the normal or abnormal kidney. No evidence is offered that the kidney has a specific attraction for acids (p. 21). The reader is cautioned not to gain the impression that the blood and tissues are not sensitive to *minute* additions of acid, although the experimental proof for this contention is lacking; in all the experiments *large* quantities of free acid (chiefly hydrochloric) were used. The author's conclusion that the higher urinary acidities occur in acute nephritis (pp. 24 and 25) is not borne out by the figures given in his Table II, which shows that of the results given for acute nephritis—only two being given—neither is higher than the highest of interstitial nephritis. For the latter the results are so variable that no average would be permissible unless an equal number of results for other forms of nephritis were cited. The titration acidities are quite as variable as the hydrogen in concentrations. The statement that acid fuchsin stains renal cells only after repeated injections (p. 29) is only further evidence that the tissues of the body are capable of maintaining their neutrality against large quantities of acid. Although the difficulty of accepting evidence as to the functions of cells based upon the dye staining process is recognized (pp. 34 and 35), the author does not hesitate to get evidence favorable to himself in that way. Experiments 15, 16 and 17 (pp. 41 and 43) demonstrate that alkalies, as well as acids, produce experimental nephritis. Lactic acid is blamed for upsetting the neutrality mechanism of the kidneys (p. 44), but the only evidence cited in support is the albuminuria after muscular work. The same charge of insufficiency of experimental evidence must apply also to the statements that certain metallic salts and alkaloids cause nephritis by producing a state of lack of oxygen (pp. 51 and 52), and that the albuminuria of the newborn is due to carbon dioxide and other acids in the blood. The increased acidity is not established—the presence of albumin in the urine is accepted as sufficient proof of the contention. That the albumin of the fluid contained in a strangulated hernia is produced by a solution of the proteids of the intestinal wall due to abnormal acid content (p. 55) will be new to most surgeons, who have been accustomed to look upon the albumin present as derived from hemic or serous effusion. Hamburger's experiments upon the swelling of liver, kidney and spleen cells in solutions of electrolytes receives a different explanation than that based upon osmotic phenomena. Although acids are stated to be the cause of cloudy swelling, experimentally only certain acids are shown to produce this

change; concerning two acids which might, under actual conditions, be supposed to be of great importance if the author's views are correct, it is to be noted that acetic acid did not produce swelling and that no experiments with carbon dioxide are reported. The author finds no difficulty in paralleling the enlargement of the renal cells and of the kidney as a whole with the swelling of gelatin or fibrin in dilute free acid (p. 73). Although it is stated elsewhere that colloids cannot be filtered through colloids, the passage of red blood corpuscles (colloidal) through the urinary tubules (colloidal) is explained by the formation and accumulation of acid and the "swallowing" of the corpuscles by the acid tissue (pp. 78 and 93). The analogy in the experiments in support of this view, the passage of globules of mercury (*not a colloid*) under gravity into acid gelatin, may not be strikingly evident to everyone. All the older views of increased blood pressure, altered permeability of blood vessels, etc., are vigorously opposed. The filtration pressure theory of urine secretion is given no credence (p. 105), but it is well to recall the common laboratory experiments on excised kidneys. The statement that "higher temperature....prevails in the urine over that prevailing in the blood from which it is derived" (p. 108) seems rather startling; at least it needs proof before it can be accepted. In the speculations on absorption and secretions (pp. 110 and 111) one fails to see why water from cells swollen by acids is excreted in the direction of the uriniferous tubule; it could just as easily be sent toward the blood. "Biologically, the secretion of the dissolved substances is selective....The other half (of urinary secretion) is the process of absorption....This is also a selective process" (116). This is the old claim of selective action, but it is difficult to see that it adds force to the argument that acids and colloids are alone to be considered in matters of renal function and nephritis. On the basis of the acidosis theory the reader is told that buttermilk causes edema in children and that the urticaria following the consumption of grapes is another example of edema due to acid; one might add that many other things without detectable acid in them and organic salts which act as alkalies may cause edema. The acid content of dry wines and alcoholic beverages is held responsible for nephritis (p. 127)—which clears up the little understood role of alcohol in the production of nephritis.

(b), Therapy. On the basis of his acid theory of nephritis as well as of edema, the author's chief therapeutic measure consists of an alkali-salt-water solution consisting of sodium carbonate, sodium chloride and water. This is injected either intravenously or per rectum or given by mouth. Of the twelve clinical cases cited as evidence in support of the therapy, in only two (Case 2, post-scarlatinal nephritis and Case 5, nephritis after tonsillitis) was the treatment simple enough as regards the variety of factors employed to offer any very strong support to the proposed therapy. Of the remaining ten cases, six were cases of pregnancy with convulsions and other symptoms. In all of those the uterus was emptied and this procedure was supplemented by rest, milk and vegetable diet and water. It is difficult to determine just how much of the improvement was due to the alkali-salt treatment and how much to the older and well recognized therapeutic measures. Two cases of parenchymatous nephritis received, besides the alkali-salt solution, milk and vegetable diet, salines, sweat baths, etc.; albumin and casts did not disappear entirely from the urine. One case of scarlatinal nephritis received milk diet from the beginning of the disease, the alkali-salt treatment coming later. Case 12 received the treatment "on the theory that uremia represents edema of the brain"; chronic interstitial nephritis was the clinical diagnosis; the case ended fatally. Considering the mixed treatment received by all but two of the patients who improved, the conclusions (p. 177) in favor of the alkali-salt therapy drawn from the small number of cases do not appear entirely justifiable. The drinking of orange juice as a prophylactic measure against nephritis is based upon experiments upon basket-ball players (pp. 180 to 183). In weighing the value of these experiments it

must be borne in mind that they were conducted without dietary controls and that albumin, although in decreased amounts, did appear in the urine after the taking of orange juice. The experiments on frogs in the latter part of the book (pp. 187 to 192), intended to bring evidence in support of the beneficial effect of the alkali-salt treatment of edema, are somewhat misleading. The irregularities and the variations in the gain in weight do not seem to justify the conclusions drawn. From an inspection of the tables on pages 187 and 188 it is evident that the frogs immersed in the salt solutions showed gains in weight, just as did those immersed in water; it is true that the latter showed a slightly greater average percentage of increase in weight, but the averages are based upon a small number of experiments and individual variations are considerable.

The numerous speculations indulged in; the many startling assertions for which little or no evidence is given; and the fact that the author declares himself so emphatically against osmotic phenomena, the hemodynamics of the circulation, the increased permeability of vessels and other well recognized facts and phenomena closely related to the function of the kidney as well as to edema, will tend strongly to minimize the value of his work. At least, they put upon Professor Fischer the burden of adducing much stronger proofs for his own theories than he has thus far attempted. Not reconcilable with the author's view are the facts that the fluid of edema is intercellular, that is, that it lies free in the interstices of tissues; and that in certain well known clinical conditions of acidosis, as in diabetes and salt starvation, nephritis and edema are not demonstrable. (Marchaud: *Centralbl. f. allgem. Path.*, XXII, 625-630).

P. J. H.

Swamp Fever in Horses. By L. VanEs, E. D. Harris and A. F. Schalk. Bulletin 94, North Dakota Agricultural College, Government Agricultural Experiment Station of North Dakota. 353 pages, with 6 plates and 12 clinical charts. Fargo, North Dakota, September, 1911.

Under the term "swamp fever" there is described a disease of horses occurring in western Canada, in the northwestern United States, in some of the Mississippi Valley states and in Panama. The condition is probably identical with the pernicious febrile anemia of horses which occurs in various parts of Europe. Our knowledge and the literature of the disease are comparatively recent. Apparently the condition is on the increase; whether actually so or whether the increasing amount of work done, attested by the bibliography of 83 titles contained in this Bulletin, only makes it appear so by facilitating the recognition of the disease has not been determined. The death rate in animals which show unmistakable evidences of the disease is high, the economic loss consequently great.

In this Bulletin the authors give a very complete analysis of the literature and a detailed report of their own clinical, pathological and experimental investigations. Clinically, acute, subacute and chronic types of the disease are met with, the authors believing that the acute cases, which are active sources of infection, usually go unrecognized. In the pathology there is nothing that is characteristic, the findings being such as may occur in any septicemia. The diagnosis of the chronic type is easy, that of the acute type difficult. The therapy, in the words of the authors, "is as yet deplorably inefficient." Only by preventive measures is there hope of controlling the disease. The question of immunity has not yet been sufficiently investigated; the writers think that some cases of apparent recovery may be non-clinical carriers; natural resistance to infection has been encountered in three experimental horses. From their investigations the authors conclude that swamp fever is an infectious disease of horses which is transmissible by subcutaneous and intravenous injection and by alimentary ingestion; that the virus of the disease, present in the blood and urine but not in the feces of infected animals, has been demonstrated only

in ultra-microscopic form, that it is resistant to the severe freezing weather of our more northern climates, that it may remain in the blood of an animal for as long as thirty-five months after the initial infection, and that it is transmitted under natural conditions through the ingestion of food or water contaminated by urine. The chief clinical manifestations are remittent or intermittent fever and albuminuria; in chronic cases anemia may be marked, but the condition cannot be considered primarily an anemia.

Investigations such as this are of the greatest value from the economic standpoint. Furthermore, it is only through investigations into comparative pathology that we may hope to attack certain of the problems of human pathology. Our admiration for the very great development of comparative pathology in this country, due to the liberality of Federal and State Governments, is coupled with a feeling of shame that the same liberality of governmental aid is not extended to the investigation of human problems. This is dependent, possibly, upon the fact that the life of a horse or a hog is a more tangible asset than that of a human being.

O. T. S.

Case Histories in Medicine, Illustrating the Diagnosis, Prognosis and Treatment of Disease. By Richard C. Cabot, M. D., Assistant Professor of Clinical Medicine, Harvard Medical School. Second Edition, Revised and Enlarged. Cloth, 295 pages. W. M. Leonard, Boston, 1911.

This book of 300 pages contains the histories of 100 cases, illustrating various infectious diseases, diseases of the gastro-intestinal and biliary tract, of the urinary tract, of the circulation, of the respiratory system, of the nervous system, of lymphatic and ductless glands, of unknown origin, and an appendix with a few scattered notes on drug therapy. There is a short discussion of each case from the standpoint of diagnosis, prognosis and treatment. This method of writing textbooks seems to be popular with the Harvard school of medicine, as similar books on almost every other branch of medical science have been published by different teachers in this University during the past year. As a method of writing a text book it certainly entails very little effort but it is difficult to imagine why the author should inflict upon physicians this book, when they are already overburdened with so many publications of doubtful value. As a method of teaching it is indeed a poor substitute for the demonstration of a patient before a class of students. The student who sees a patient with pneumonia carries away with him a mental picture of the condition, much more accurate than he can get from a description of a case, no matter how graphically it may be told. The physician who reads this book will be interested for the moment, but like the ordinary novel, he will seldom again refer to it. It lacks the charm and fails to give the instruction to be found in such publications as Byron Bramwell's "Clinical Studies." What we physicians need most is fewer and more instructive books.

J. P.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. Volume XIII, No. 4. Whole No. 52. Volume IV, December, 1911. Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum.—Diseases of the Kidneys.—Surgery of the Extremities, Shock Anesthesia, Infections, Fractures and Dislocations, and Tumors.—Genito-Urinary Diseases.—Practical Therapeutic Referendum. 326 pages. Lea and Febiger, Philadelphia and New York, 1911.

Progressive Medicine is a quarterly digest of the advances, discoveries and improvements in the medical and surgical sciences. The fact that the contributors are the same from year to year increases the value of the quarterly. With the exception of the chapter by J. C. Bloodgood, the authors content themselves with abstracting papers from the literature without making comments or discussing the topics from the standpoint of their own personal experience. It is a pity that they do not all follow his example as it would greatly increase the value of the publication. In the chapter on therapeutics we notice references to new measures of value such as the use of warm baths in pertussis, injections of glycerin in retention of urine and the use of sodium citrate in acidosis. Altogether the volume is a useful review of the literature.

J. P.

Acknowledgments.

Quarterly Bulletin of Northwestern University Medical School. Vol. XIII, No. 2.

Public Health and Marine-Hospital Service of the United States: Public Health Bulletins Nos. 45, 49 and 50. Reprint from Public Health Reports No. 67.

Infections of the Hand. By Allen B. Kanavel, M. D., Assistant Professor of Surgery, Northwestern University Medical School, Chicago. Octavo, 447 pages, with 133 illustrations. Cloth, \$3.75 net. Lea & Febiger, Philadelphia and New York, 1912.

Ether Day Address, 1911, by Dr. Simon Flexner, Sc. D., M. D., New York.

Proceedings of the Canal Zone Medical Association, October, 1910, to March, 1911. Vol. III, Part 2.

Correspondence.

December 28, 1911.

Editor, The Cleveland Medical Journal.

Dear Sir: My attention has been called to an editorial on the Wassermann test in your journal of November, 1911, signed W. T. C. There is much truth in the article, especially that part of it which condemns the indiscriminate and haphazard making of Wassermann Reactions by unqualified persons, but the long list of diseases, other than syphilis, which give positive reactions as cited by W. T. C. is largely erroneous, as Wassermann and his school have shown that these diseases with proper technic and with proper antigens (extracts of syphilitic liver) do not give positive Wassermans. As a grievous wrong may be done by accepting this long list as giving positive Wassermans, it is hoped that you will set the matter right before your readers. The diseases which give positive Wassermans, other than lues, are leprosy, recurrent fever, yaws and cases of recent malaria.

The matter is gone into more fully in an article read before the Colorado State Medical Society by me just after my return from working in Wassermann's laboratory. I enclose the same for your perusal or publication as you see fit.

With best wishes and respectfully,

WM. C. MITCHELL.

612-614 Metropolitan Building,
Denver, Colorado.

Medical News.

Ohio State Medical Teachers Association: At the sixth annual meeting, held in Columbus, December 26, H. Kennon Dunham of Cincinnati presented the presidential address. The other papers submitted were: "Autopsies as an Aid in the Teaching of Special Pathology," by W. E. Moseley of Toledo. "The Relation of Physiology to Clinical Medicine," by R. J. Hoskins of Columbus. "Some Principles of Organization to Secure Practical Results in Anatomical Teaching," by Henry McE. Knowler of Cincinnati. "Sectarians in Public Hospitals," by John K. Scudder of Cincinnati. "The Relation of Medical Colleges towards each other, and Medical Education in General," by W. J. Means of Columbus. The newly elected officers are: President, John K. Scudder, Cincinnati; Vice President, Lester E. Siemon, Cleveland; Secretary, V. A. Dodd, Columbus; Treasurer, C. W. McGavran, Columbus. These, with the following, constitute the Executive Committee: W. E. Moseley, Toledo; H. Kennon Dunham, Cincinnati; F. C. Waite, Cleveland. An effort will be made to secure the cooperation of the various colleges of the Ohio College Association, in the establishment of pre-medical courses for medical students. The next meeting will be held at Columbus during the Easter vacation week.

The American Association for the Advancement of Science, at the meeting in Washington, D. C., during the Christmas holidays, selected Cleveland as the place for the 1912 meeting.

Examination of Dentists for the U. S. Army: The Surgeon General of the Army announces that examinations for the appointment of Acting Dental Surgeons will be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado; and Fort McDowell, California, on Monday, April 1, 1912. The essential requirements are that the applicant shall be a citizen of the United States, shall be between 21 and 27 years of age, a graduate of a dental school legally authorized to confer the degree of D. D. S., and shall be of good moral character and habits. Acting Dental Surgeons are employed under a three years' contract, at the rate of \$150.00 per month. They are entitled to traveling allowances in obeying their first orders, in changing stations, and in returning to their homes at termination of service. They also have the privilege of purchasing certain supplies at the Army Commissary. After three years' service, if found qualified, they are promoted to the grade of dental surgeon with the rank of first lieutenant, and receive thereafter the pay and allowances appertaining to that rank.

The New York Post-Graduate Medical School and Hospital formally opened its new buildings and laboratories, 2nd Avenue and 20th Street, on January 11.

The Executive Committee of the American Association for the Study and Prevention of Infant Mortality met in Cleveland on January 13 for the purpose of perfecting arrangements for the annual meeting of the Association to be held here next fall. At a public meeting held at The Babies' Dispensary and Hospital addresses were made by the members of the Executive Committee. On this committee are the following from Cleveland: Chas. A. Otis, Vice President; A. D. Baldwin, Director and H. J. Gerstenberger, Secretary.

The North Central Branch of the American Urological Association will meet in St. Louis on February 5, 6 and 7.

The Medical Review of Reviews of New York has taken over *Therapeutic Medicine* and announces plans for increasing the scope and value of the *Review* during the coming year.

The Erie County Medical Society, at a meeting held at Sandusky on Wednesday, November 29, 1911, was addressed by C. A. Hamann of Cleveland upon "Acute Abdominal Diseases." M. J. Love, President and Fred Schoepfle, Secretary-Treasurer, were re-elected for 1912.

The Muskingum County Medical Society met at Zanesville Wednesday, December 13, 1911. The paper of the evening, "Non-Meddlesome Gynecology," was read by Hunter Robb of Cleveland.

Athens County Medical Society: At the meeting held Tuesday, December 5, 1911, the following officers were elected: President, J. L. Henry; Vice President, H. H. Dorr; Secretary, T. A. Copeland; Treasurer, H. H. Phillips; Censor, J. M. Higgins. A public address in the Ohio University Auditorium, on "The Need of Medical Inspection in the Public Schools," by J. M. Withrow of Cincinnati, under the auspices of the Society, followed the regular meeting.

Academy of Medicine of Toledo and Lucas County: The general meeting was held Friday, December 1, 1911. The program was a paper on "Visceroptosis in Children," by Richard R. Smith of Grand Rapids, Michigan. At the meeting of the Pathological Section, held Friday, December 8, 1911, the following program was presented: 1, A Case of Traumatic Hemorrhage from the Right Fallopian Tube, Operation and Pathological Report, H. H. Heath. 2, Cases and Types of Flat-foot, B. G. Chollette. 3, Two Cases of Bifid Bladder and a Case of Congenital Diverticulum of the Bladder, R. S. Walker. 4, Trichinosis, Case Report, R. P. Daniels.

At the meeting of the Coshocton County Medical Society held at Coshocton on Thursday, December 28, 1911, the following officers were elected for 1912: President, F. M. Marshall; Vice President, T. W. Lear; Secretary and Treasurer, J. D. Lower. There were adopted resolutions, addressed to the public, asking a more prompt settlement of physicians' accounts, demanding the payment of fees in confinement cases in cash, stating the refusal of the members of the Society to buy diphtheria anti-toxin for patients and requesting fairer treatment in the payment of services rendered in casualty work.

M. Stamm, Fremont, Ohio, was chosen Delegate to the Constitutional Convention from Sandusky County.

E. L. Vermilya, of Fremont, Ohio, is spending the latter half of January in Florida.

S. Englander, 3001 Scovill Avenue, is at present in Berlin, Germany, where he will remain until June 1, 1912 working in urology and proctology in the clinics of Israel and Casper.

C. E. Ward has opened an office at 716 Osborn Building.

H. A. Budd and J. B. Koller have purchased Emergency Hospital, 1846 East 55th Street, Cleveland, from W. O. Ellsworth.

The million-dollar endowment fund of the Medical Department of Western Reserve University has been raised. It is learned that the amounts given include two subscriptions of \$250,000.00 each, two subscriptions of \$100,000.00 each, one subscription of \$50,000.00, three subscriptions of \$30,000.00 each, two subscriptions of \$25,000.00 each, and other subscriptions of \$10,000.00, \$5,000.00 and \$1,000.00 each. In addition to the new fund and the money invested in buildings the Medical Department has the following special funds: The John A. Vincent Fund, \$3,400; The John Huntington Fund, \$40,000; The John L. Woods Fund, \$142,000; The H. Melville Hanna Research Fellowship Fund, \$12,000; The Leonard Hanna Endowment Fund for the Chair of Clinical Microscopy, \$40,000; The Henry Wilson Payne Endowment of the Department of Anatomy, \$100,000; The Doctor Adolph Cudell Memorial Library Fund, \$465; The Hanna-Payne Endowment for a Chair of Experimental Medicine, \$170,000; The Hanna Endowment for Apparatus in the Laboratory of Experimental Medicine, \$17,000.

Exhibition of the Ninth International Red Cross Conference.

The American Red Cross has called attention to the exhibition in connection with the Ninth International Red Cross Conference, which will be held in Washington, D. C., from May 7 to 17, 1912.

The exhibition will be divided into two sections, which will be styled Marie Feodorovna and General. The former is a prize competition, with prizes aggregating 18,000 rubles, or approximately \$9,000, divided into nine prizes, one of 6,000 rubles, approximately \$3,000; two of 3,000 rubles each, and six of 1,000 rubles each.

The subjects of this competition are as follows:

1. A scheme for the removal of wounded from the battlefield with the minimum number of stretcher bearers.
2. Portable (surgeons') washstands, for use in the field.
3. The best method of packing dressings for use at first aid and dressing stations.
4. Wheeled stretchers.
5. Transport of stretchers on mule back.
6. Easily folding portable stretchers.
7. Transport of the wounded between warships and hospital ships, and the coast.
8. The best method of heating railway cars by a system independent of steam from the locomotive.
9. The best model of portable Roentgen apparatus, permitting utilization of X-rays on the battlefield and at first aid stations.

The maximum prize will be awarded to the best exhibit, irrespective of the subject, and so on.

The General Exhibit is again divided into two parts; the first will be an exhibition by the various Red Cross Associations of the world. The second will be devoted to exhibits by individuals or business houses of any articles having to do with the amelioration of the sufferings of sick and wounded in war, which are not covered by the Marie Feodorovna Prize

Competition for the year. While the American Red Cross will be glad to have any articles pertaining to medical and surgical practice in the field, it is especially anxious to secure a full exhibit relating to preventive measures in campaign. Such articles will be classified as follows:

1. Apparatus for furnishing good water in the field.
2. Field apparatus for the disposal of wastes.
3. Shelter such as portable huts, tents and the like, for hospital purposes.
4. Transport apparatus (to prevent the suffering of sick and wounded) exclusive of such apparatus as specified for the Marie Feodorovna Prize Competition.

As with the Marie Feodorovna Prize Competition, for this country only articles having the approval of the Central Committee of the American Red Cross will be accepted.

Diplomas will be awarded for exhibits in this section of the exhibition as approved and recommended by the Jury.

Further information may be obtained from the Chairman, Exhibition Committee, American Red Cross, Washington, D. C.

It is perhaps to apparatus having to do with prevention of disease in armies that the energies of Americans have been specially directed since the Spanish-American War. Therefore, the last mentioned section of the Exhibition should make an appeal to them.

Deaths.

Renwick H. Montgomery, Youngstown, Ohio, died October 24, aged 49.

Bishop McMillan, Shepard, Ohio, died November 15, aged 43.

George C. Ogden, College Hill, Cincinnati, Ohio, died December 2.

Nathan T. Noble, St. Marys, Ohio, died December 4, aged 69.

John Q. Mulford, Lebanon, Ohio, died December 10, aged 52.

Belford Wood Pickering, Gloucester, Ohio, died December 20, aged 67.

William E. Williams, Jackson, Ohio, died December 26, aged 63.

Robert B. Meek, Fremont, Ohio, died December 14.

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An Analysis of 500 Consecutive Unselected Invasions of the Peritoneal Cavity.

By R. E. SKEEL, M. D., Cleveland, Ohio.

It happened, when your Secretary asked for a paper, that I was making an effort to compile a cross index of patients operated upon since the opening of St. Luke's Hospital, July 15th, 1908, and had the material comprised therein fresh in mind and therefore more easily analyzed and commented upon than the production of a paper on any one topic. This must be my apology for presenting a clinical summary rather than a formal scientific discussion.

As above intimated the greater part of the operating, perhaps 95 per cent, was done at St. Luke's and most of the remainder in two small Cleveland hospitals where the surroundings were congenial. Only a very occasional case was operated upon in private homes and none in hospitals where the nursing and house force were unfamiliar and therefore unknown quantities.

City Hospital work is not included, although its tabulation would lower the death rate as none of my operative cases happen to have died in that institution.

It was found that the period July 15th, 1908, to July 15th, 1911, ran a little short of even numbers, but by including all to August 1st, 1911, it made precisely 500 distinct invasions of the peritoneal cavity and this number was therefore selected as the basis for our observation.

Let me preface the actual analysis of results by a few introductory remarks on statistics in general and a short review of methods. Various comments have been made from time

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to time upon the subject of statistics, such as, "Statistics are of no value save to the one who compiles them", "There are lies, damned lies and statistics", etc., with much of which I agree. Statistics, unless in enormous numbers, may be entirely misleading and even then are so unless honestly interpreted, but the statistics of one individual honestly interpreted and analyzed may be of value if the series is large enough or runs over a long enough time to equalize the factor of luck.

Ordinary hospital statistics are perniciously misleading. Some years ago I received the report of a small hospital whose capacity I knew, which showed that more major operations had been performed in the institution than it had beds for, providing each patient remained ten days, to say nothing of the minor operative patients and medical and obstetrical patients which it had sheltered in the time covered by the report.

In general hospitals open to all, the statistics of poor staff men are helped out by good outside men and vice-versa, for the good men do not all have hospital positions nor are the poor ones all found outside. The personal equation of the reporter must always be known, and this is lost in hospital reports where one man is counting cases to make a record, operating easy cases and refusing desperate ones; while another counts records as merely an incident and accepts any hazard no matter how desperate, provided only operation offers a hope that palliation does not.

Preparatory Treatment.

Preoperative treatment has one end in view and one only, viz., to make operation as safe and convalescence as comfortable as possible. If the patient is well, aside from the disease for which operation is performed, nothing excepting an empty flaccid bowel and a clean operative field is needed. Drenching a patient with cathartics does not promote flaccidity of the bowel but on the contrary causes tympany. One dose of castor oil, an early morning enema and exclusion of milk from the liquid diet for the preceding 24 hours accomplishes all this without distress. The skin preparation is simple but thorough, as a lesson was taught me some years ago by clinical observation rather than experiment. At this time it was the custom to scrub and shave the skin

the day preceding operation, apply a soap poultice for several hours, follow this by another scrubbing and the application of a moist bichlorid compress until the actual time of operation. Emergency cases such as ruptured extrauterine pregnancies, acute appendicitis, etc., could not undergo this prolonged procedure and were prepared immediately before operation. Observation showed that patients with such emergency preparation invariably had fewer stitch abscesses and less skin reaction than those more formally prepared. Consequently the soap poultice was first abandoned and then the bichlorid compress. At present, on the night before operation, the abdominal wall is shaved; washed with soap and water with a sponge, not with a brush; the washing is followed by alcohol, and a sterile dry dressing is applied. In the operating room and before anesthesia the washing is repeated, followed by alcohol, Harrington's solution and alcohol again and the field covered with a sterile towel which remains until anesthesia is complete. If suturing is properly done no stitch abscesses follow this method of preparation in clean cases. This being true I have seen no necessity for staining the hospital linen by chasing the latest fad and using iodine on the patient's skin. The skin cannot be absolutely sterilized and the iodine preparation, in my opinion, has gained its great popularity through the fact that it prevents overpreparation and thus preserves Nature's resisting power. No dependence is placed on bichlorid for sterilizing the hands and it is rarely used. As some one has said before me "the dependence which is placed on bichlorid solutions as sterilizing agents would be ludicrous were it not so dangerous."

Anesthesia.

In the series which I am presenting ether was used 417 times, nitrous oxid and oxygen 68 times, chloroform 1, local anesthesia 10, and local anesthesia followed by ether 6 times, a total of 502, the discrepancy being due to re-opening the abdomen in two fatal cases. It will be seen that ether is still the anesthetic of choice with sound lungs, heart and kidneys in abdominal operations. Outside of the abdomen nitrous oxid has many advantages, such as lack of post operative nausea, diminished kidney irritation, diminished liability to ether bronchitis, pneumonia, etc., and it also presents advantages in abdominal operations when the patient is far below

par from protracted and wasting illness. With robust, even ordinarily muscular individuals, the abdominal muscles remain rigid enough to be a serious annoyance and even a danger under unmixed nitrous oxid and oxygen anesthesia. This rigidity calls for a larger incision, leads to more evisceration and infinitely more bruising of the wound in order to accomplish the same results that one could obtain under ether. Immediate return to consciousness is not an unmixed joy, as the unhappy, pained expression of many a gas case reveals a few minutes after her return to bed. Personally I should prefer to sleep until the pain of the primary incision had passed at least and this necessitates an immediate resort to the hypodermic.

Careful observation of many beautiful gas anesthetics will reveal the admixture of ether at critical times and this mixed nitrous oxid ether anesthesia is probably the most ideal that we can obtain at the present time, provided always an expert is at hand who knows how to give it and provided always that the gas is pure. I would rather have ether given by the average hospital interne a dozen times than gas once. So soon as gas assumes the degree of popularity which it is rapidly acquiring there will be a series of deaths that will make ether look very good in comparison, and I will venture to prophesy that these deaths will be due to two causes, impure gas and lack of expert gas anesthetists.

While we have had several instances of ether bronchitis and a few of pneumonia, there has been but one fatality that could even remotely be attributed to the anesthetic. This will be discussed under the fatalities. No postoperative suppression of urine has been encountered, excepting in one patient in whom the ureters were extensively denuded.

An effort is always made to shorten the period of anesthesia by being ready to operate at once when the patient is under, having all preparing done in advance, and by anesthetizing on the table so that no moving about is necessary. We do not take seriously the reputed fright of the average patient at the operating room. If a surgeon cannot gain the confidence of his patient to such an extent that there is no especial fright he would do better to turn him over to some one who can. In our experience the mental discomfort that comes to the surgical case comes when he finds he must go to

the hospital, and once that is over any individual of even ordinary sense drops into the routine of preparation, going to the surgery, etc., in a very placid manner. It may be necessary occasionally to anesthetize a child in bed, but an adult never.

For patients in very bad condition local anesthesia can be used much more frequently than has ordinarily been the practice. The abdominal incision, gentle exploration, everything except rubbing the parietal peritoneum, making traction on the mesentery and tying pedicles is easily rendered painless. A few whiffs of ether at the painful period tide the patient over and the general depression of prolonged anesthesia is thus avoided. As with gas, however, postoperative pain is severe, but the patient's life may be saved.

Chloroform has been resorted to but rarely, once only in the present series. We do not feel that chloroform is such an excessively dangerous drug in the hands of one accustomed to its use, but one who is giving ether constantly and chloroform only occasionally is very apt to give too much, in spite of a theoretical knowledge of its dangers. When chloroform must be given by the inexpert, I prefer to start it myself to save criticism in case of any accident. In the hands of one giving chloroform constantly it presents some advantages, but the possibility of sudden death must always be before one.

Operative Methods.

Only a few things will be touched upon in this connection. The high Trendelenberg position is rarely used. I have been convinced for some years that patients who had been in this position did not do so well as others but could not explain why until Bovee called attention to the marked lessening of the urinary secretion during the first day or two succeeding operation, and my own observation since reading his article has convinced me of its correctness. Except in the presence of almost insuperable difficulties the intestine can be thoroughly packed out of the pelvis with a very moderate elevation.

Incisions are constantly being made larger in spite of all that is said of the advantages of small incisions. Accidents are fewer with a liberal incision. I have seen the prominent advocates of the tiny incision bore through the intestine more than once in a foolish endeavor to get into the abdomen

through a button hole, as well as lose the stump of an appendix before it was tied and smear the wound with fecal matter. If one could make a diagnosis in advance of operation of all the pathological conditions present there would be more sense in advocating an incision through which an ovary or tube or appendix could barely be dragged, but this is not the case, and in many instances of chronic appendicitis adhesions have been left which would have been separated had the incision been large enough to reveal them, and in pelvic cases the same is true. In obscure lesions in the upper abdomen a survey of the whole field is impossible through the small incision and this leads to imperfect work and imperfect results. To our way of thinking, surgery must be done with the brains as well as the fingers. To our mind time is also an important factor which, however, rarely needs consideration when a single operation is undertaken; for the single operation rarely consumes so much time as to need to be taken into account. Whether one consumes ten or thirty minutes in removing an appendix is not so important as whether he has done his work completely and with finish. Time becomes a factor, however, when a curettage, cervix amputation, anterior colporrhaphy, perineorrhaphy, suspension of the uterus and kidney fixation are needed in the same patient. The average patient who is sound in heart, lungs and kidneys and whose hemoglobin is normal will stand a half hour of anesthesia and manipulation without perceptible bad effect, an hour with little result, but an hour and a half begins to tell. We have rarely consumed more than the latter time with any combination of operative procedures. In ruptured ectopics again, one must forget all idea of finished work, but get at the bleeding vessel, extirpate the tube and get out again in the shortest possible time. A part, at least, of the dissension regarding the propriety of immediate operation in ruptured ectopic pregnancy is due to the personal equation of operators, some of whom are unable to overcome their pedantic habits even in the face of dire necessity. That time enough has always been taken in this series is revealed by the fact that no abdomen has had to be reopened to catch vessels or to turn out a hematoma; in wide open pus cases the abdominal wall has sometimes bled and needed attention afterwards, but the abdominal cavity has never been re-

opened for this purpose. Contrary to all modern precedent, we are not ashamed to use drains after pelvic operations when pus is encountered whose sterility is questioned, when the intestine has been injured in such a way as to make its vitality doubtful, or when the oozing has been persistent after wide separation of adhesions. That it has never led to infection is shown by the fact that in this series no case not already the victim of peritonitis has developed it. That some hernias may develop is quite possible but in cases merely drained and packed, not left wide open, none has developed so far as known. In extensive pelvic lesions that are known to be or are suspected of being infected, a cofferdam of gauze separates the denuded area from the general peritoneal cavity and is brought out above or below, as seems judicious at the time, and convalescence is many times smoother than with simple operation and no drain. We are thorough believers in leucocytes and opsonins, but we do not believe that it shows good judgment to leave too much for them to do. There has been a really laughable amount of literature on the failure of drainage to drain and on the lack of capillary drainage, in test tube experiments, by gauze unless the latter is kept wet and the outer end lower than that in the tube, etc., etc.; but a test tube, wash bowl or even bath tub has no pressure exerted upon its contents, while the abdomen has. The chief function of a drain when used for drainage purposes is to keep an opening through the parieties out of which serum, blood or pus can flow when muscular movements cause the pressure in the abdomen to rise higher than the atmospheric pressure outside of it, and fluid will run up hill under pressure. No abdomen has been reopened and drained after once having been closed excepting in acute cases in which secondary abscesses have formed.

Suture of the Abdominal Wall.

After trying all sorts of sutures from through and through to suture of each layer we have finally found satisfaction in closing the peritoneum with a running catgut stitch, then inserting one or two, (according to the length of the incision) silkworm gut stitches well back from the wound edge and through all the layers of the abdominal wall excepting the peritoneum. These latter are tied over gauze after all others are completed. The muscle is coapted by in-

interrupted plain catgut, the fascia by a running stitch of plain catgut, and the skin by interrupted silkworm gut through the skin only. The fat is never sutured. Many imperfect closures are due to the use of catgut in the skin, as nothing can keep catgut sterile on the skin surface. Chromic gut as a fascia and muscle suture has been given up for the same reason that silk has, that too many knots come away weeks and months after the operation. The deep tension sutures take the strain off from the plain gut and in addition prevent some hematomata of the abdominal wall by keeping its layers approximated. If skin sutures are neither deep nor tight they are left for twelve to fourteen days before removal.

Postoperative Treatment.

There is absolutely nothing unique in this excepting the use of morphin and the abandonment of cathartics. We have never seen the slightest harm come from morphia in moderate doses during the first day or two after an abdominal section. All theoretical objections to its use are as lacking in force as would be similar objections to the use of anesthesia during operation. It is constipating, but what of it? It does not cause intestinal paresis, but rough handling of the viscera does, and careful observation of the technique of some no morphia advocates reveals the reason for their attitude. It is sometimes life saving, by its very antiperistaltic action preventing the spread of infection from a localized area. No cathartics are given. For the first day or two after extensive manipulation in the abdomen there are areas of intestine which are paretic from handling and the administration of cathartics only causes more pain without overcoming this paresis in the slightest. What good the added misery of nausea, colicky gas pain, etc., has ever done I am not able to understand. Fear of obstruction and peritonitis leads to the use of cathartics, but I will venture the assertion that peritonitis was never prevented and obstruction more frequently produced than relieved by them. Postoperative obstruction is more frequently caused by sharp angulation than any other one factor and filling the intestine with gas above a kink intensifies rather than overcomes it. It is our personal opinion that the patient would be better off if the nervous surgeon were given a stiff dose of bromid after each operation and the patient deprived of the nasty dose of calomel and salts

which has literally become a surgical fetich! Enemas on the third day open the bowels if nothing is radically wrong and laxatives come later if they are needed.

In analysing a series of cases some terms must be defined if they are to mean anything. In computing the death rate in chronic cases, deaths either immediate or remote are counted if due to operation; those due to the continuation of the process, such as deaths from carcinomata which are found to be inoperable, are excluded.

In acute cases death either from operation or continuation of the disease for which operation was performed are counted, whether they occurred in the hospital or not.

By combined operations we mean operations on different organs. Curettage preliminary to extensive plastic work is not called a separate operation, nor is the breaking up of adhesions which is incidental to practically every salpingectomy. Removal of diseased tubes with the myomatous uterus is not regarded as a separate operation, but removal of a true ovarian cyst is so counted.

Acute Appendicitis.

There were 99 operations on patients with acute appendicitis. All varieties are included in this from acute catarrhal inflammation to gangrene, local abscess, spreading peritonitis, general peritonitis and septicemia, provided only the appendicular lesion was the origin of the patient's illness. There were four deaths. Not a case was refused operation whether on the first, third or tenth day. In five there was incision and drainage only, in 94 the appendix was removed. Of the four deaths two were from general septicemia with petechiae and hemorrhage under the skin, one died on the fifth day after operation from pneumonia, and one died a few hours after operation who had not only a gangrenous appendix but gangrene of the entire cecum as well. Not one died from general peritonitis. A final analysis of these cases would take too much time for the present occasion and will not be attempted. It is sufficient to say that I am daily more convinced that by a judicious selection of anesthetics from a list including cocain, nitrous oxid and ether every case is safer with operation at any time than by any other method of treatment, notwithstanding the fact that many patients re-

cover spontaneously. Not one death was attributed to the anesthetic or operation in any way. The pneumonia death might be questioned, but it occurred in a patient profoundly septic at the time of admission with a general peritonitis, who did well until the fourth day and then developed a massive pneumonia quite unlike either an ether or septic pneumonia. It seemed an undoubted intercurrent affection and took place during an apparent epidemic.

Three patients were pregnant at the time of their attack and all recovered. One thing has impressed me tremendously, not only from experience in this short series but from hundreds of others, and that is the lack of proportion between the symptoms and the actual lesions present. Pain, vomiting, high pulse and temperature, rigidity, tenderness and high leucocyte count are sometimes found with insignificant appearing erosions in the appendix; and I know of no analogous condition unless it be in the severe septic symptoms arising from trivial infections in the urethra. On the other hand the gravest anatomical lesions may have extremely mild symptoms. The patient who died shortly after operation and who was carrying a gangrenous cecum walked into the hospital just before the operation.

At least two cases of salpingitis were operated upon under the mistaken diagnosis of acute appendicitis and some instances of pelvic abscess thought to have been of tubal origin were unquestionably appendiceal.

Chronic Appendicitis.

The classification adopted for this paper is not at all scientific. I have grouped under this heading true cases of chronic infection with concretions and adhesions, the obliterative type of chronic inflammation with stricture formation, and recurrent cases operated in the interval. There were also a few normal appendices removed at the patient's request, the abdomen being opened for some other purpose.

The total number of patients operated on was 114. In 45 there was no other operation, fifteen were combined with cholecystostomy, twenty-one with round ligament shortening or other methods of suspending the uterus, and eight with nephropexy. Two impressions concerning the diagnosis of chronic appendicitis have been forced upon me; one that it is frequently overlooked and in this event is called dyspep-

sia or indigestion, the other that it is frequently diagnosed when absent. In the latter event retroversion, salpingitis, movable cecum, pericolitis dextra, gall stones, floating kidney and renal and ureteral stones are the chief stumbling blocks. In patients in whom all other conditions can be ruled out pericolitis dextra has been found more frequently than any other one lesion. These adhesions which exist between the cecum and lateral parietal wall, or the cecum and the transverse colon I always attributed to a preceding acute appendicitis, and I considered my ground secure since it was no uncommon event to see a patient in the acute stage with classical symptoms who recovered and submitted to operation later whose appendix was entirely free from any visible evidence of the acute attack while the surrounding viscera were densely adherent. I am not yet convinced that the former idea was incorrect, since so many cases of acute appendicitis are undiagnosed in childhood, but closer observation has certainly confirmed Gerster's stand that these patients all have colitis. Whether the colitis is produced by the adhesions or the adhesions by the colitis or whether they have no connection with each other I am not at all certain. One thing is certain, that I approach operation upon any case diagnosed as chronic appendicitis with considerable apprehension that the diagnosis is incorrect unless the patient has abdominal pain in the umbilical or epigastric regions. In other words, I am in grave doubt when all the pain is confined to the right iliac fossa.

Conversely all stomach cases should be submitted to rigid scrutiny before the diagnosis of dyspepsia is made. The stomach *per se* seems to have about as little wrong with it anatomically, and as few diseases, aside from cancer, as any organ in the body.

The frequent combination of appendectomy and cholecystostomy shows either that the appendix and gall bladder were simultaneously diseased or that one presented marked lesions while the other was under grave suspicion in not a few instances. While I am skeptical about any of the reasons that have been advanced to explain coexisting disease in the gall bladder and appendix, their frequent coincidence cannot be doubted.

This frequent association of other lesions and errors in

anatomical diagnosis is the chief reason for making adequate incision rather than mere peek holes through the abdominal wall.

Fixation and Suspension Operations.

Fifty patients had some variety of fixation or suspension performed in the abdominal cavity. In this group are most of the combined operations, the abdomen having been opened but twice for an uncomplicated displacement, while there were 140 operations all told on the fifty patients under discussion. Round ligament shortening was done nineteen times for retroversion and retroflexion in women during the child bearing age. Ventrosuspension twelve times for retrodisplacement in women who were near the menopause or in whom the tubes were removed for disease so that pregnancy could not again occur. Ventrofixation was used for prolapse. If the case was so serious that vaginal hysterectomy would be the text book operation ventrofixation with ligation of the tubes was the method of choice. Vaginal hysterectomy for prolapse is just as logical as resection of the omentum for hernia and no more so, and has been superseded entirely by a fixation operation by means of which the fundus uteri is incorporated in the abdominal wall.

One death occurred and taught a valuable lesson, or rather two of them. This patient was a true hysteric, but had had several well defined attacks of mild acute appendicitis, a retroverted uterus and profuse menorrhagia. The appendix was removed and the round ligaments shortened by the posterior method, drawing the ligaments through a perforation in the broad ligaments and stitching it to the posterior wall of the fundus. The operation was short and easy and convalescence uninterrupted for two or three days. The bowels moved, but not freely, and flatus passed, but vomiting was more prolonged than usual. Pain was rather more severe than ordinary, but these were both attributed to the neurotic condition. The pulse and temperature were normal until shortly before death. On the fourth day it was noticed that distended intestinal coils were visible and preparation was made to open the abdomen on the following day. A few hours before this was done the patient suddenly went into collapse. The abdomen was opened immediately and found full of intestinal contents. On drawing the small intestine

out of the pelvis a coil was found adherent to the posterior surface of the broad ligament and a nipple of intestine was gangrenous and perforated where it had become insinuated into a minute opening in the broad ligament. The entire strangulated area was no larger than an ordinary lead pencil, which accounted for the passage of flatus and the absence of serious general symptoms, and perforation brought about sudden collapse. Since that time unusual symptoms are not attributed to any neurosis unless all other reasons can be excluded.

Ovariectomy for New Growths.

Of these there were thirty-three; thirty-two recovered and one died. This death is not attributable to operation but to a preceding acute anemia. The case was one of unusual interest and was wrongly diagnosed as a ruptured ectopic pregnancy. A young married woman after some irregularity of menstruation suddenly had a severe hemorrhage from the uterus, fainted, had abdominal pain, and an elastic mass filling the entire pelvic cavity could be made out. Her bleeding had continued for several days upon admission to the Lutheran Hospital and the mass was said to be increasing in size. An overlooked element of some importance in the history was a similar although much less severe attack several months previously. Her blood examination revealed no change in the leucocyte count but less than one million red cells and the hemoglobin below 15 per cent, too low for accurate estimation. Doctor W. E. Lower kindly transfused the patient immediately preceding and during the operation, which revealed bilateral ovarian cystomata densely adherent. These were quickly removed and the patient was somewhat better the next day, but gradually lost consciousness and died from cerebral anemia at the end of 48 hours.

Another case was somewhat out of the ordinary. The patient had been ill for four days with severe abdominal pain and vomiting and an abdominal tumor reaching to just above the umbilicus was discovered by her physician when first called, but she refused to go to the hospital, as she was certain that prayer would be more efficacious than operation. Her physician finally declined to have anything further to do with the case, since she would not allow operation, although her general condition and abdominal enlargement were be-

coming noticeably worse. On the fifth day she gave up her prayers and entered the hospital in a state of collapse, with a thready pulse of 140, the abdomen enormously enlarged and dull to the costal arch on the left side. She was apparently dying when admitted in the morning, but under the free use of salines the pulse became a trifle fuller and the facial expression improved slightly, so that operation was performed that afternoon under local anesthesia. An ovarian cyst absolutely black throughout was removed, its pedicle having been twisted through two and one-half complete revolutions. There were no untoward symptoms during her recovery.

Salpingectomies.

There were 56 salpingectomies and salpingo-oophorectomies for inflammatory disease, with no deaths. So far as the history showed the greater number of these were of specific origin, a lesser number of puerperal origin and there were a few in which neither infection could be ascertained. In the light of two recent experiences I am inclined to think them appendicular. Both ovaries were removed very rarely, as almost without exception one could be retained. Radical operation was not performed in the acute stage when it could possibly be deferred, which means that specific cases were left entirely alone during the acute stage and *postabortum* infections were first opened and drained if serious symptoms manifested themselves. Some specific cases never reach a complete cold stage but show a little evening temperature over many weeks. So soon as this stage was reached radical operation was performed, but such abdomens were never closed without drainage. Salpingo-oophorectomy for old inflammatory disease with many and dense adhesions is said by some authorities to furnish a high mortality rate. In my own experience the risk to life is trifling, although the morbidity is somewhat high, and it is to cofferdams and drainage that I attribute the total lack of fatalities in these cases. No abdomen in this class was closed as presenting insuperable operative difficulties.

Abdominal Hysterectomies and Myomectomies.

There were two myomectomies, five panhysterectomies and forty supravaginal hysterectomies. Thirty-one of the supravaginal amputations and two of the panhysterectomies

were for fibromyomata. Nine supravaginal amputations were for benign conditions, recurrent hemorrhage in which malignancy was not demonstrably present, but the persistence with which bleeding recurred made hysterectomy less to be feared than the constant invalidism and the ever-present possibility of overlooked malignant change in the endometrium, ovarian cystomata densely adherent to the uterus, and specific infection.

Of the other three panhysterectomies one was for specific infection and two were for carcinoma of the cervix.

In the forty supravaginal amputations there was one death and this was tragic. In this case the Wertheim's operation should not have been completed as both ureters were involved and were dissected out of carcinomatous masses for several inches. This patient died from uremia, undoubtedly due to ureteral interference.

The myoma patient who died was discharged from the hospital, dressed and waiting for a conveyance to take her home, when she was taken with excruciating abdominal pain and collapsed. On reopening the abdomen a perforation of the cecum as large as a silver dollar was exposed and the patient soon succumbed. Whether this was preoperative or due to postoperative embolism, or possibly to ligation of the appendiculo-ovarian ligament, is in doubt. The patient had been a teacher in the South for several years, was very anemic and had bloody stools with diarrhea during her entire convalescence. During the few days preceding operation during which she had been under observation the nurse reported dark stools, but as the patient was taking iron, no importance had been attached to this. She had had repeated attacks of dysentery in the South and it is altogether probable that a true dysenteric ulcer existed at the time of operation.

The two myomectomies were in young women, one pregnant seven months. The latter patient was presumed to have acute appendicitis, having all the cardinal symptoms. On operation there was found on the right side of the uterus posteriorly a pedunculated myoma, which had become rotated on its pedicle and strangulated, and, curiously enough, it so compressed the appendix as to seriously jeopardize its vitality, so that it was of necessity removed. The patient carried her child to term without incident.

Herniotomy.

Forty-seven patients had fifty-one herniotomies. Thirty-one patients had inguinal hernia, eight femoral, three umbilical, one epigastric and four postoperative. Five inguinal hernias, one femoral and one umbilical were strangulated; all the strangulated hernias recovered. There was one death following operation for double inguinal hernia, one side having been incarcerated and inflamed for ten days. Death took place from pneumonia, which made its appearance forty-eight hours after operation, death occurring five days later.

One of the strangulated inguinal hernias occurred in a male pseudohermaphrodite, seventeen years of age, who was dressing as a girl and whose sex was not suspected until operation, when a testicle was found in the hernial sac.

The strangulated umbilical hernia took place in an elderly man with diabetes and was operated under cocain. The patient was partially comatose for three days, but recovered.

Femoral hernias are now all repaired by opening the abdomen above Poupart's ligament and closing the canal by stitching the ligament to the periosteum of the pubic bone.

Ectopic Pregnancy.

Seventeen patients with extrauterine pregnancy had eighteen operations. The extra operation was due to a delayed diagnosis, so that suppuration occurred in the hematoma, caused by early hemorrhage, the formation of a pelvic abscess necessitating vaginal incision with drainage. Hemorrhage into the abdominal cavity above the abscess wall recurred time and again and finally necessitated radical operation, which was followed by recovery. All of the ectopics had bled before operation and all of them recovered. The secret of success in operating on ruptured ectopic pregnancies lies in a minimum of anesthetic and the shortest possible operation, simply tying and extirpating the tube, leaving fluid blood to take care of itself, and closing the abdomen, all of which can be done in from ten to twenty minutes.

Gall Bladder Operations.

Forty-five patients had operations undertaken on the gall bladder; ten for acute lesions with elevated temperatures and pulse and marked leucocytosis; nine of these had gall stones, the tenth gangrene and pus without concretions.

Thirty-five operations for chronic cholecystitis were done and stones were found in twenty. Impacted common duct stones were removed three times, twice by incision through the duct and once by transduodenal choledochotomy. Cholecystectomy was done but once, and cholecystostomy forty-four times. The worst showing statistically was made in the gall bladder cases, three having died. One death was an acute case with a mass, thought to be a gall bladder full of pus, in which a hasty drainage operation was contemplated. The mass proved to be adherent intestine and the patient had a stone of enormous size impacted in the cystic duct. Death was sudden on the third day from pulmonary edema.

The second case was also acute. The patient had diabetes and pancreatitis and died from diabetic coma.

The third death, in an old case with dense adhesions and perforation of the gall bladder into the duodenum, was purely operative. In separating the adhesions the head of the pancreas was injured and the injury was not recognized. At autopsy on the third day after the operation the entire lesser peritoneal cavity was found full of pancreatic juice and all the catgut sutures had been digested.

The most trying abdominal cases I have, aside from those with malignant disease, are those with gall bladder lesions. Not only is there a very perceptible mortality rate, but the patients are very ill after operation; and there are enough patients with recurring symptoms to make me very much dissatisfied with the results as I see them. On the other hand, the very severe cases with oft-recurring typical colic are greatly pleased with the outcome after operation.

Unclassified.

In the unclassified list there were four patients with acute intestinal obstruction aside from the strangulated hernias. One of them died after his third operation, which was a resection. The three others recovered.

There were eight gastroenterostomies, with one death. The latter patient would not have been operated had I seen him before he was sent to the surgery, as he had acute, instead of chronic, dilatation of the stomach and a pyloric carcinoma back of it. We are beginning to feel that gastroenterostomy is entirely satisfactory for pyloric or duodenal obstruction and for nothing else.

Nine exploratory laparotomies were done on patients with inoperable malignant disease. All recovered from the operations, but all soon died from extension of the malignancy. All but one of them was diagnosed in advance and all were informed of the hopelessness of any operation which could be made. Each one chose to gamble on the chance of a mistaken diagnosis. The tenth was undiagnosed and proved to be a melanotic sarcoma of the liver.

One flat mistake was made. A syphilitic tumor of the liver was regarded as a movable tumor of the stomach.

In a little class by itself are three cases of rupture and perforation of the uterus. One took place during an ordinary labor. I saw her two hours after the accident, pulseless and unconscious, with the foetus in the abdominal cavity. As mentioned above, the labor was entirely normal up to the time of rupture. The condition was at once recognized by her physician and the patient hurried to the hospital, where immediate laparotomy was done. The cervix at the internal os was surrounded by an elastic ligature and the uterus amputated above it, but into the broad ligament extended a tear from which bleeding could be controlled only by packing and forceps and the patient died soon after leaving the table. Another ruptured uterus might possibly have recovered had the diagnosis been made earlier. This patient had an induced abortion, became septic and was curetted and the uterus irrigated with bichlorid solution. Abdominal symptoms of an unusual type soon made their appearance. On the second day following the curettage I saw her but was wholly undecided as to the character of the trouble. The next day a posterior *cul-de-sac* incision evacuated a large quantity of blue serum and the patient died from mercurial poisoning with dysentery and total suppression of urine. The perforated uterus came from the use of a sound in the hands of a midwife attempting an abortion and recovered after merely closing the opening.

Twice during this time I have perforated the uterus, but as both cases were clean the abdomen was not opened and both patients recovered.

There were twenty instances of abdominal and pelvic abscess; these were largely of genital origin and all were evacuated and drained without mortality.

All told, there were sixty-seven cases in the unclassified list, of whom four died; one from shock following intestinal resection, one after an ill-advised gastroenterostomy for acute dilatation of the stomach, and the two with ruptured uteri.

Summary.

In 56 salpingo-oophorectomies for inflammatory disease	0	deaths	0.0%
In 18 operations on 17 patients with ruptured ectopic pregnancy	0	"	0.0%
In 33 ovariectomies for tumor	1	"	3.0%
In 45 gall bladder operations	3	"	6.6%
In 2 myomectomies	0	"	0.0%
In 40 supravaginal hysterectomies for benign conditions	1	"	2.5%
In 3 panhysterectomies for benign conditions.....	0	"	0.0%
In 2 panhysterectomies for malignancy.....	1	"	50.0%
In 7 operations for strangulated hernia	0	"	0.0%
In 43 herniotomies in 40 patients, one incarcerated...	1	"	2.5%
In 99 operations for acute appendicitis with and without complications	4	"	4.0%
In 114 operations for chronic appendicitis	0	"	0.0%
In 50 operations for suspension or fixation	1	"	2.0%
In 67 operations unclassified	4	"	6.0%
Total mortality from all sources			3.2%

Incidentally, there were seventy-eight plastic operations on the cervix and pelvic floor on the patients enumerated above performed at the same time as the abdominal operations. And in the laparotomy list having plastic operations there were no deaths.

There were sixteen deaths in the entire list, the operation which was followed by death being given above. The actual causes of death were:

Acute anaemia	2
Diabetic coma	1
Injury to pancreas	1
Septic cholangitis	1
Perforation of cecal ulcer	1
Uremia	1
Pneumonia	2
Septicemia	2
Toxemia with gangrene	1
Postoperative obstruction and perforation	1
Mercurial poisoning	1
Operative shock	1
Operation on patient moribund from pyloric carcinoma.....	1

There were four clear operative deaths; one from shock, one from pancreatic injury, one from postoperative obstruction and perforation and one from uremia. Two of these were in patients not otherwise fatally ill; the other two were

doomed, one from organic obstruction and the other from carcinoma.

Two deaths were of doubtful origin, the death from pneumonia following herniotomy, and the perforated cecal ulcer. Both may have been operative; one probably was and the other likely was not.

To me the most interesting feature of the whole analysis is the fact that of the sixteen deaths but one was due to any of the three fatal complications which form the text book basis of fatalities following opening the abdomen, viz., shock, hemorrhage and septic peritonitis. There were no deaths from operative or postoperative hemorrhage and none from postoperative peritonitis, thus again proving that it is the unexpected rather than the expected which most frequently happens and it is the unlooked for complication against which we must guard.

314 Osborn Building.

The Purification of Water by Filtration: Mechanical Considerations.

By R. W. PRATT, Consulting Sanitary Engineer, Cleveland, Ohio.

The filtration of public water supplies for the purpose of removing sediment and other impurities has been practiced in Europe, especially in England, for the last 60 or 70 years or more. The method used was what is now called the slow sand system and consisted in passing the water through sand beds at relatively slow rates and without first using chemicals to produce a coagulation of the impurities. European methods of filtration were proposed for use in this country as early as 1866, and during the few years following were installed in several of our smaller cities. In some cases, where the character of the water supply was similar to that of the English supplies, the filters were successful, but in other cases, where turbid waters were treated, success was not attained.

In 1890 the Massachusetts State Board of Health, at its Lawrence Experiment Station, began an extended investigation of the principles underlying the purification of water by filtration and of the nature of the processes involved. Merri-

Read before the Academy of Medicine of Cleveland, January 19, 1911.

mac River water was used in these studies. Three years later, in 1893, based on the results of the work at the Experiment Station and also following European precedent, a filter was built to purify the entire water supply of the city of Lawrence. This was the first filter installed expressly for the purpose of reducing the typhoid fever death rate. Its success in this regard is well known, the typhoid death rate having been reduced some eighty per cent. This did much to stimulate interest in filtration in other American cities. During the next few years the installation of filters of the slow sand type was begun by Albany, Philadelphia, Washington and Pittsburgh.

About 1884 there was invented the American or mechanical system of water filtration. The essential features of this method were, and still are: first, the addition of a coagulant to the water before it is applied to the filtering material; second, the passage of the water through the sand layer at a rapid rate; third, provision for cleaning the sand layer in place by means of a reverse current of water instead of removing the dirty sand, as with the slow sand system.

Mechanical filters were first used principally by paper manufacturers who required a clear water. Their use as a means of hygienically purifying water was not generally begun until within the last ten or twelve years. The efficiency of the principles of mechanical filtration for municipal supplies was perhaps first proven during experimental tests at Louisville and Cincinnati in 1897 and 1898. These cities are representative of a large class in the Middle West, which have to use a clay-bearing water, one that cannot be purified bacterially, or even clarified, by the slow sand system. The development of mechanical filtration to its present state of efficiency has been necessary to meet the demands of such cities.

The cost of installing filter plants may range from \$10,000 to \$40,000 or even \$50,000 per million gallons capacity. This unit cost varies with the size of the plant, the character of the water to be treated, the expense necessary to connect with the existing water system and other local considerations. For example, the cost of installing the raw water pumps would be much less in places along the Great Lakes than it would be on the Ohio River, where the water level fluctuates

fifty or sixty feet. Studies by the Ohio State Board of Health of eleven filter plants in Ohio have shown the cost per million gallons capacity to be: at Cincinnati, \$49,830; at Denison, \$26,000; at Elyria, \$10,000; at Geneva, \$13,000; at Lorain, \$12,000; at Marietta, \$10,000; at Rocky River, \$14,000; at Upper Sandusky, \$15,000; at Vermillion, \$8,000; at Warren, \$13,000; at Youngstown, \$13,000. The average cost per million gallons capacity has been shown to be about \$17,000. Excluding the Cincinnati plant, however, which cost \$49,830 per million gallons capacity, the average cost of the remaining ten is only \$13,000 per million gallons capacity. The cost per capita, based on the ultimate capacity of the plant, excluding Cincinnati, was found to be about \$1.50.

Slow sand filters are in general more costly to build but cheaper to operate than mechanical filters. This statement is made with the assumption, of course, that the slow sand filters are installed only where the water is sufficiently clear to enable them to be operated with reasonable periods of service between cleanings.

Operating costs vary greatly with the quality of the raw water and the character of the treatment. Lake waters drawn from points removed from shore are cheapest to treat; while muddy river waters are most expensive. Special treatment to remove color or odor adds to the cost; and water softening may increase the cost two or three times. Under ordinary conditions filtered water may be obtained at a cost of ten dollars per million gallons, including interest and depreciation charges. This figure will vary from five to twenty dollars.

With slow sand filters the principal operating cost is the maintenance of equipment and the cost of labor used in washing the sand. With mechanical filtration the cost of chemicals and labor, which are about equal, constitute the largest items. In Ohio it was found that the operating costs, excluding interest charges, ranged from \$2.55 per million gallons at Elyria to \$12 at Warren, with Youngstown second highest at \$10.67. This great difference in cost is largely due to the superior quality of Lake Erie water taken from a point fairly remote from pollution over that of the turbid and polluted Mahoning River.

In considering the cost of maintaining a filter plant attention should be directed to the comparatively small increase

in the cost of supplying filtered water over that of supplying unfiltered water. This increase is rarely more than twenty-five or thirty per cent, and frequently only ten or fifteen per cent. In any case, the increase should not amount to more than fifty cents to two dollars per person per year—a small price to pay for enjoying pure water and all of its benefits.

Water Filtration From the Sanitary Standpoint.

By R. G. PERKINS, M. D., Professor of Hygiene and Preventive Medicine, Western Reserve University, Cleveland, Ohio.

The process of filtration, as brought before you by the previous speaker (see paper by R. W. Pratt on page 100) involves a more or less complex plant and the use of a certain amount of hand labor with the consequent presence of workmen in and about the water. It is clear then that there should be adequate sanitary precautions taken that these men do not add unnecessary pollution to the water or to the sand at any point in the process. While it is true that the filtration is supposed to remove the bacteria, it is also true that "innocence is better than repentance" and the less polluted the water is before filtration, the easier it is to get it pure by the process. The slow sand type has more opportunities for contamination, on account of the handling and washing of the sand and the presence of the workmen in the body of the filter, but the constant development of machinery is reducing this danger rapidly. In addition to the liabilities of pollution from this small source there are dangers over which we have less control. It has been found that when the filter bed freezes, there is decreased efficiency, and this is shown by the increase in the bacteria in the effluent. Many epidemics have been traced, as will be noted later, to exactly such occurrences, which are due in part to the fact that the increased viscosity of water at low temperatures makes the filtration more difficult, and in part to actual cracks in the filter. It must be remembered that it does not take a very large crack to admit of the passage of bacteria. For these reasons it is now the custom when possible to have the filter beds covered, but in beds of the slow sand type the area may be very large and covering difficult and expensive. In the me-

chanical type, the actual filter beds are usually covered, but here another difficulty comes in, namely that inasmuch as with such a rapid filtration, some forty times the speed of the slow sand type, a coarser sediment is necessary, the introduction of some chemical precipitant is necessary. This, in addition to such chemical changes as may be desired, makes a coarse precipitate which involves the bacteria in its meshes, so to speak, and makes them more easily removed by the sand. The amount of the chemical must be properly proportioned and in case of sudden changes in the natural chemical content of the water the amount may be temporarily insufficient, and some of the bacteria may get past.

Inasmuch as the most rapid methods of bacteriological diagnosis involve an interval of at least twenty-four hours it is obviously possible that a large amount of untreated water may reach the clear water well. It is, therefore, a developing custom to have a plant for the administration of chlorin in small amounts installed as a factor of safety, which is made easier by the fact that the filtered water passes into a clear water reservoir which allows a satisfactory time interval for the disappearance of the chemicals.

These are the essential points with regard to the actual administration of the filtration plant, and with their proper carrying out, the quality of the water supplied to the community should be excellent. This does not close the discussion, however. Given a filtration plant, with a resultant clear and safe water supply, what will be the benefit accruing to the community?

Certain facts are generally agreed on in this connection. A pure water supply will remove *all cases of disease which have been attributable to the central supply*. The actual reduction in the mortality from these diseases will depend on the relative number present before the installation of the plant and the number which was attributable to other causes. These diseases will be of the intestinal type, in our latitude mainly typhoid and some dysentery, in other places also cholera and a higher proportion of dysentery. This is, however, apparently not the whole story. In 1893 and 1894 observations were made practically simultaneously in America and in Germany, showing that after the establishment of a good water supply there was a fall in a number of infectious disease rates

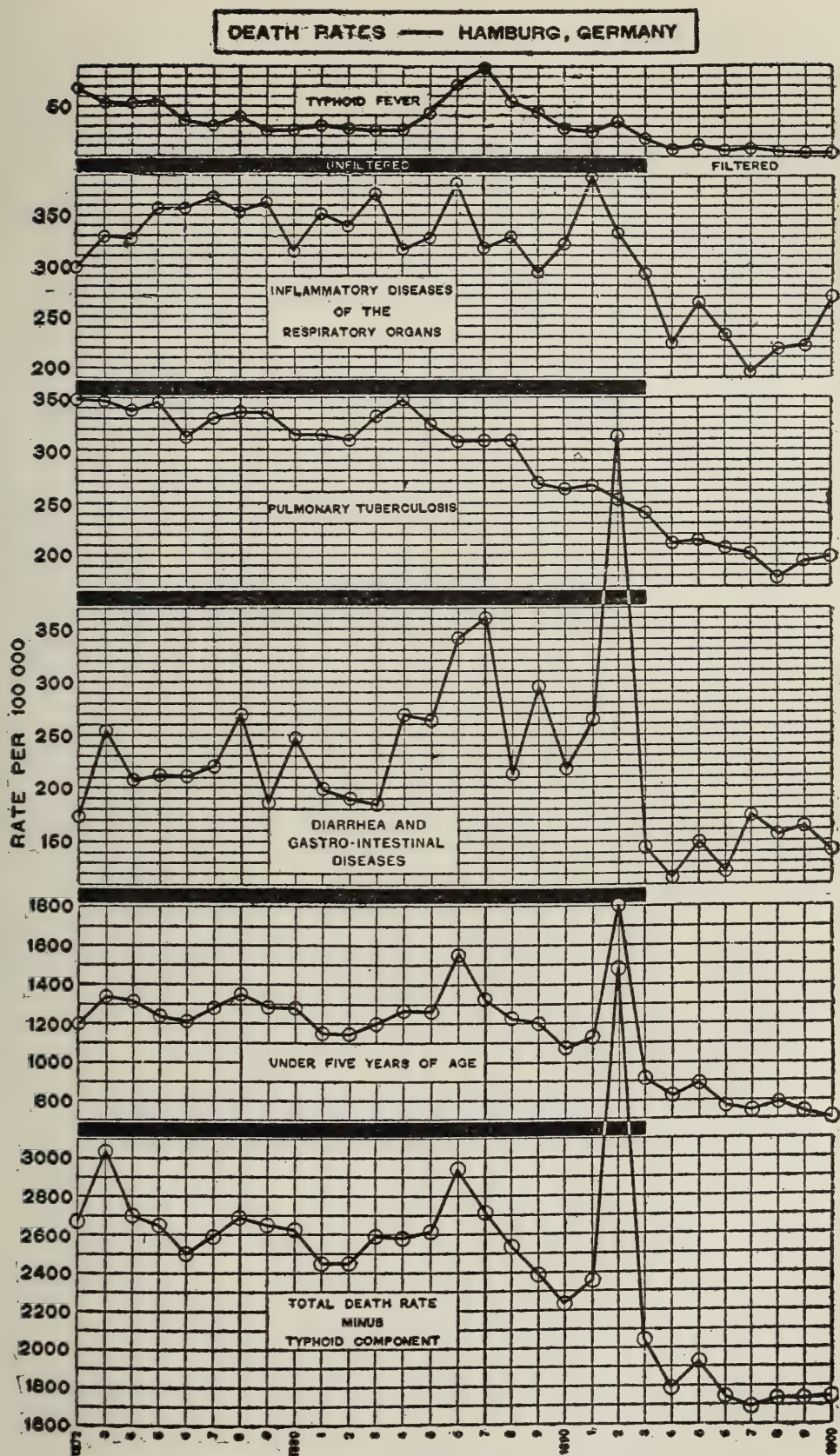
which were not of the water borne type. From the names of the observers, Mills in this country and Reincke in Germany, the name of the "Mills-Reincke phenomenon" has been given to the condition. Later Hazen put the matter into more or less mathematical form, stating with proper reservations that for every death saved from typhoid there were three or four saved from other diseases. This statement has come to be known as the "Hazen Theorem." The original investigators based their opinions on a series of facts, the one obtained in Germany, mainly at Hamburg, and the other in Massachusetts, mainly in relation to Lawrence.

Sedgwick and MacNutt have recently brought the matter before us in a very simple and conclusive manner, summarizing the work of Mills and of Reincke and adding recent investigations of their own, performed in a very careful way. They have compared the two towns of Lawrence, which changed from the polluted waters of the Merrimac to filtered water, and Lowell, which changed from the same polluted source to pure upland water, with a third town, Manchester, which is about the same size and type of population, but which has had a consistently good water. This last is, therefore, used as a "norm."

To us in Cleveland the conditions at Hamburg are perhaps of more immediate interest, as their water supply has many points of similarity to ours. As was brought out in a former paper in this Journal, the Cleveland supply, taken from Lake Erie at a point some miles from shore, is subject to periodic pollutions from the city sewage, dependent on wind and weather conditions outside the ability of the city to control. Hamburg has its intake some miles up the Elbe, and this is subject to periodical pollution from the city sewage under conditions of wind and weather beyond the control of the city. In the case of Hamburg, a northeast wind backs the water up the river, making an artificially high tide which carries the sewage back to the intake, and in the same way if there is very low water in the river the tide comes up higher. With us a heavy rain causes the Cuyahoga River to sweep out towards the intake, and a southeast wind makes a lake current towards the intake. The conditions are then notably parallel in their relation to uncontrollable causes, and the main difference is that Hamburg now filters its water, while

Cleveland does not. Before the filtration at Hamburg the Elbe water was probably normally more polluted than Lake Erie's now is, so that the change was more marked than would be the case with us.

After the installation of filtration, which, like most advances in public health conditions, was not taken seriously till the outbreak of serious epidemic conditions, it was noticed that the death rate was lower than it had been since 1820. Since no especial changes other than those relating to the water supply had been installed, the improvement was set down to the idea that in the previous cholera epidemic a great many had died who would otherwise have dragged on into the following year. The next year and that following it was noted that the good conditions continued, and since a large amount of the reduction was in the death rate of children under two years it was apparent that the former idea could no longer hold. Hamburg had better opportunities than most cities to make accurate calculations as there is an annual enumeration instead of the ten year census. Investigations were then undertaken with a series of very instructive results. It was found that in Altona, best known as that part of Hamburg which did not suffer from the cholera epidemic of 1892, there had been a set of typhoid epidemics from 1886 to 1892, all of which could be definitely traced to the periods in cold weather when the filters were being cleaned, no epidemics having occurred in relation to similar cleanings in the open winters. Again, in relation to the infantile diarrhea epidemics it was noted that the most serious in Altona had occurred after a period in which unfiltered Elbe water had been used for a short time, and that further it was the general opinion of the Hamburg physicians that the infantile diarrhea in that town was largely due to mixing the *turbid* Elbe water with the infant's milk. In Berlin, on inquiry, similar results were shown to have followed breaks in the correct action of the filters, no epidemics having occurred in the parts of the town supplied by the best filters. Carrying the investigations farther back it was noted that previous to the establishment of filtration, there was uniformly an epidemic of infantile diarrhea two weeks before the development of the typhoid epidemics, as would be expected on the basis of the different incubation periods. These



From The Journal of Infectious Diseases, VII, 1910

CHART 1

results indicated that the infantile diarrhea in these towns at least was in the main due to the impurities in the water.

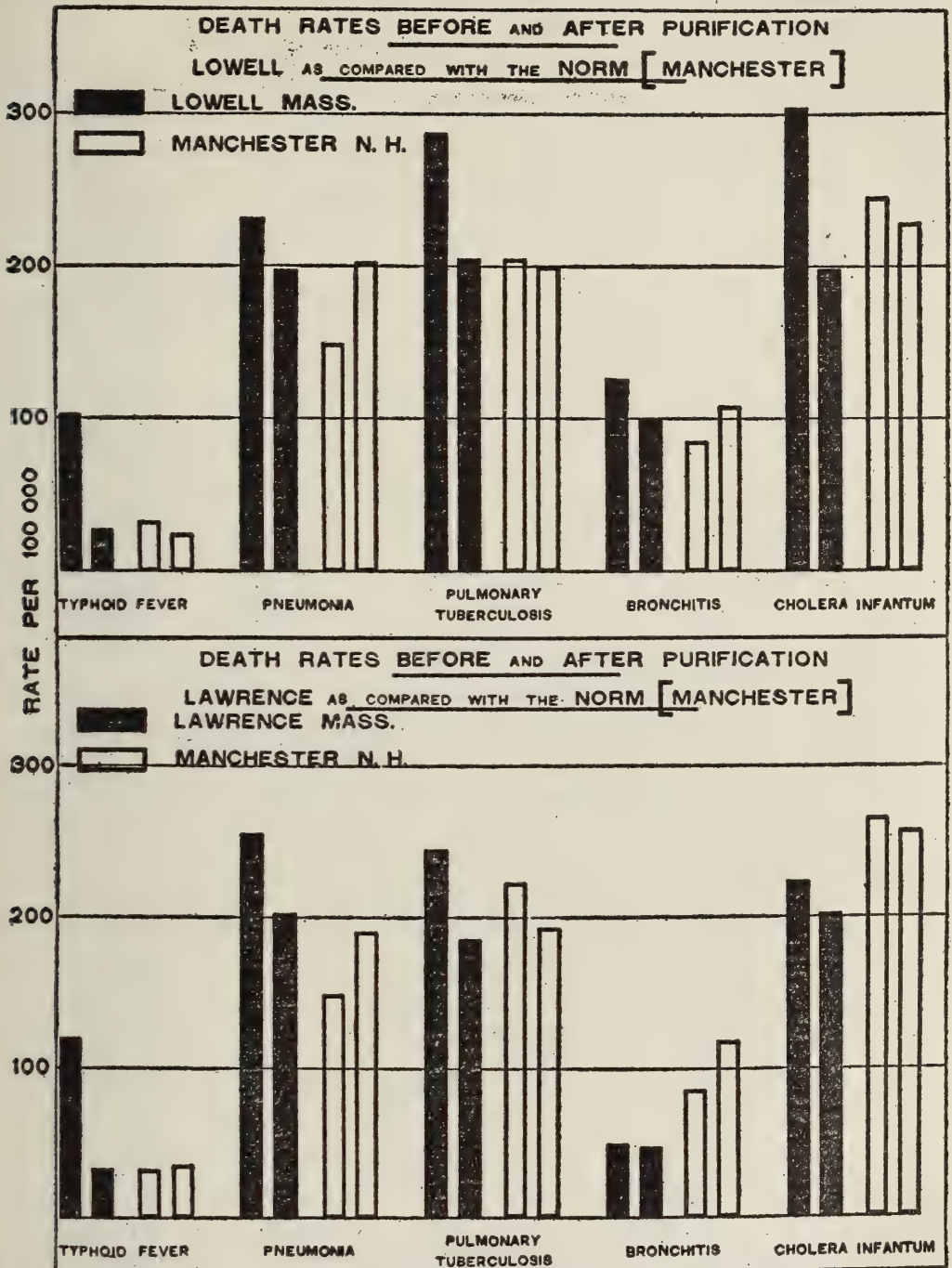
There were, however, even further reductions in the death rates and analysis showed that by comparing the average rates in the five years before filtration and the five years after filtration, typhoid fell from 34 to 8 per 100,000, infantile diarrhea from 300 to 136, and what is more remarkable, acute pulmonary diseases from 312 to 240, and tuberculosis from 273 to 216. (Chart 1.)

The death rate for children fell from about 1,300 to about 800, and the *total death rate, exclusive of typhoid*, from about 2,700 to about 1,800. It is interesting to note that a similar reduction in our present rates here would put typhoid below 4, infantile diarrheas below 100, acute lung diseases below 250, tuberculosis below 100, and the total rate, exclusive of typhoid, under 1,000, instead of about 1,400. It is, of course, not to be expected that any such change would follow, but even a moderate fraction would make a very handsome change in the rate.

On our side of the water the above mentioned studies of Lowell, Lawrence and Manchester give further confirmation. Without going in detail into the changes resulting in the alteration of the water supply, one may say that the Hazen theorem is confirmed, and that in the case of these towns it even appears to be an underestimate. Lawrence was the first of the towns to get a pure supply and this was definitely established in 1893 with the intention of reducing the typhoid rate. The death rate from all causes fell so much that the Federal authorities asked for the reason, and as was the case in Hamburg, no reason other than filtration could be brought forward. In a report in 1903 Hazen states that "the question how far this (reduction in the general death rate) is due to the water supply and how far to improved general sanitary conditions may be properly raised, but the very decided reduction at the time of introduction of the filter, and the steadiness with which the rate has continued low since, seem to indicate that the water supply had something to do with the question and that the coincidence was not accidental." Here again the fall was due to reduction in a variety of diseases in addition to typhoid.

Lowell changed from the Merrimac water to pure sup-

plies from the uplands and a similar change was noted. The best evidence of these changes in the two cities before and after change in the water supply is indicated by the accom-



From The Journal of Infectious Diseases, VII, 1910

CHART 2

panying chart (Chart 2), comparing the total death rates in them before and after purification, with the rates obtained in the same years in Manchester. It will be seen that in general the fall brings the rate to about that of the norm. In the next

chart (Chart 3) the fall in the general rate exclusive of typhoid is perhaps even more striking, showing that in the cities investigated the actual rate fell even below in one case, and to the same level in the other.

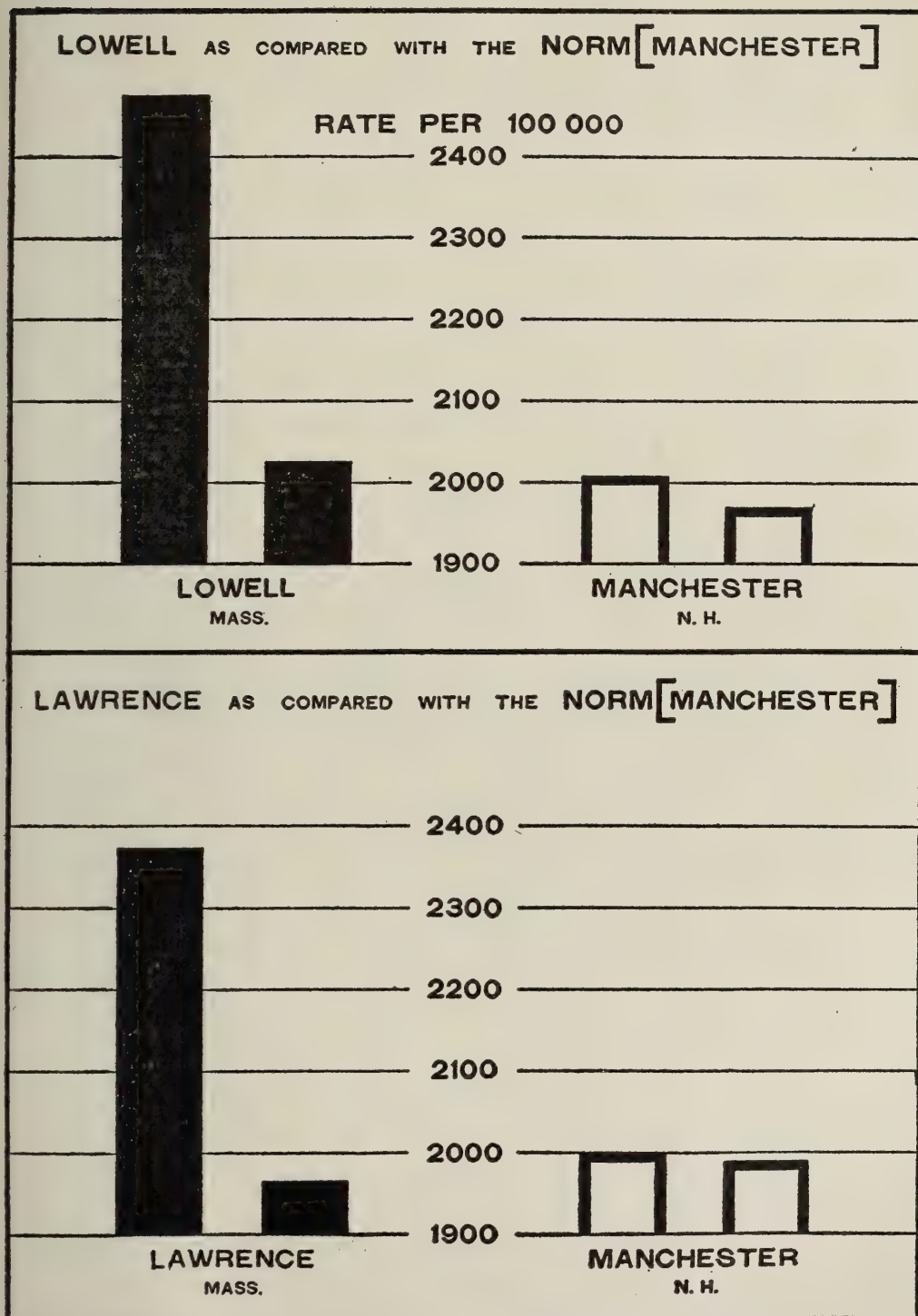
A number of other cities in this country have also been investigated in which there has been a change from a polluted to a clean water supply, and though in some instances the change has not been so marked as in Hamburg, Lowell and Lawrence, it has been everywhere present. Other interesting facts have developed by analysis of the special diseases. It was noted that in some towns the decrease from typhoid was not as much as had been expected but on the other hand there was a complete disappearance of such mongrel terms as "typhoid malaria," etc., indicating that these in the old regime were probably all typhoid. It has also been noted that where there was no special change, either in the general death rate or in the typhoid rate, the water should be still looked on with suspicion, as the change might not be as good as had been supposed.

There are two general theories as to the cause of this reduction of disease following on the acquisition of a clear and safe water supply after the continued use of a polluted one. It may be due to the actual removal of germs from the water causing diseases other than typhoid, or the improvement of the quality may lead to a general increase of resistance. While the prevalent opinion according to Sedgwick is in favor of the removal of bacteria, the results of our various changes in the water supply are suggestive of the other possibility, though the evidence is by no means convincing. After the change from the West Side crib to the new crib there was an enormous reduction in typhoid, but cursory comparison of the death rates from various diseases before and after the change shows that there is no marked alteration such as has been noted after filtration. There was little actual change in the physical and chemical qualities of the water, the main alteration being in the removal of a large proportion of the sewage organisms. If this idea is correct, the present treatment with chlorin should have little effect on the general mortality curve other than the expected reduction in the definitely water borne diseases. The infantile diarrhea has been almost entirely confined to the summer months,

PERKINS—WATER FILTRATION
REDUCTION IN DEATH RATE

111

FROM
DISEASES OTHER THAN TYPHOID FEVER
FOLLOWING
WATER SUPPLY PURIFICATION



From The Journal of Infectious Diseases, VII, 1910.

CHART 3

in which the etiology is mainly concerned with agencies other than water, and of course no opinions can be given until the disinfection has run the full twelve months to offer a basis of comparison. If a filtration plant follows the disinfection there will be an unusually good opportunity to work out the relations over a period of several changes, some purely bacterial, some chemical and physical as well.

In summation, then, the establishment of a filtration plant with an abundant supply of pure and clear water appears to lead to a marked reduction in the total death rate, affecting primarily the water borne diseases, but also such components as acute respiratory diseases, tuberculosis and infantile mortality. Granting this to be true, it is clear that it would free various agencies now occupied in combatting these diseases to more widespread efforts, along the same lines and along others in addition. The question of the health of our cities is now becoming a factor in the commercial world in the decision as to places for the location of new plants, or for the holding of conventions, and any efforts that we may make successfully for the improvement of the health conditions in Cleveland will be profitable in many ways.

(The charts are those used in the article by Sedgwick and MacNutt, in the *Journal of Infectious Diseases* for October, 1910, and acknowledgment is herewith made of our indebtedness to them and to the *Journal*.)

A Case of Phlebitis Migrans.

By JOHN PHILLIPS, M. B., Assistant Professor of Medicine, Western Reserve University, Cleveland, Ohio.

The occurrence of extensive recurring phlebitis is very uncommon. In 1905, Briggs collected from the literature four cases and reported three others that came under his personal observation, in which no etiological factor could be determined, and suggested the title of "Idiopathic Recurrent Thrombo-phlebitis." One of the earliest reports is that of James Paget in 1866, who described certain cases of migrating phlebitis, associated with ordinary gouty inflammation in the foot or joints, and occurring, with little or no evident provocation, in persons of marked gouty constitution or with

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, January 5, 1912.

gouty inheritance. His description is so accurate that I give it in his own words. "In such cases," he says, "the phlebitis may have no intrinsic characters by which to distinguish it; yet, not rarely, it has peculiar marks, especially in its symmetry, apparent metastases, and frequent recurrences. Gouty phlebitis is far more frequent in the lower limbs than in any other part; but it is not limited to the limb that is, or has been, the seat of ordinary gout. It affects the superficial rather than the deep veins, and oftener occurs in patches, affecting (for example) on one day a short piece of a saphenous vein, and on the next day another separate piece of the same, or a corresponding piece of the opposite vein, or of a femoral vein. It shows herein an evident disposition towards being metastatic, and symmetrical; characters which, I may remark, by the way, are strongly in favor of the belief that the essential and primary disease is not a coagulation of the blood, but an inflammation of portions of the venous walls. The inflamed portions of vein usually feel hard, or very firm; they are painful, aching, and very tender to the touch; such pain, indeed, often precedes the clearer signs of the phlebitis, and not rarely begins suddenly. The integuments over the affected veins, (where they are superficial), are slightly thickened, and often marked with a dusky reddish flush. When superficial veins alone are affected there may be little oedema; but when venous trunks, as the femoral, the whole limb assumes the characteristics of complete venous obstruction. It becomes big, clumsy, featureless, heavy and stiff; its skin is cool and may be pale, but more often it has a partial, slightly livid tint, with mottling from small cutaneous veins visibly distended. The limb thus enlarged feels oedematous all through; but firm, and tight-skinned, not yielding easily to pressure, and not pitting very deeply. By this state almost alone the disease must sometimes be recognized, for it may be very marked when only a small portion of vein is affected, and that (as the lower part of the popliteal) so deeply affected as to be scarcely felt."

Schwarz has reported two cases of migrating phlebitis affecting the veins of the upper extremities that occurred in advanced cases of pulmonary tuberculosis. Neisser under the title of "*Ueber wandernde Phlebitis*," has reported one case of his own, and collected six others from the literature in

which syphilis was apparently the etiological factor. In his cases the upper extremities were most frequently affected. The lesions were examined microscopically. Recently Herick has reported a typical example of phlebitis migrans occurring in a woman, aged 60, who had a mild osteoarthritis. The pathological condition in the case extended over a period of six and one-half months and there were twelve inflammatory lesions involving the superficial veins of the lower extremities and the epigastrium. Each process was preceded by pain in the affected region lasting from 24 to 48 hours, this pain not always being localized exactly to the site of the new lesion. The lesion itself was a superficial, red, hot, indurated area, continuous with the small superficial veins, which were at times more prominent than usual. The size of these areas was variable; the usual width being about three-quarters of an inch, the length varying from one to four inches. About these areas in some cases there was very slight local edema. There was never any evidence of serious interference with the circulation. There were no systemic symptoms.

The case I wish to report is that of a lawyer, aged 40, who complained of swelling in his right leg, which was painful at times and had troubled him for five months. His family history threw no light on the case. He was a man of good habits and had never had any venereal disease. In the fall of 1896 he had a severe attack of iritis, which lasted practically all of that winter, and which yielded finally to the administration of salicylates. At about this time he began to have attacks of herpetic stomatitis, which had affected him almost permanently since that time. From this condition he had never found any relief until the summer of 1910, when traveling in France he was given a mouth wash which contained salol. This never seemed to prevent the onset of the attacks of stomatitis but did seem to check its spread, thus greatly relieving the discomfort. His attacks of iritis have recurred at intervals of about two years, the last attack being in October and November, 1909. In 1906 he had an attack of acute articular rheumatism involving the larger joints of both extremities. He has at times had some pain and swelling of the second joint of the great toe of the right foot, which was probably a gouty manifestation.

The first manifestation of his present trouble came in

August, 1910, when in London, England, the calf of his right leg became swollen and painful. The swelling remained but the pain disappeared in the course of three or four days. In November, 1910, while playing golf, he was seized with a severe pain in the lower part of the abdomen on the right side. From this time until February 14th, when I saw him first, he had some swelling of the right leg below the knee. He was able to attend to his business but he had considerable discomfort in his right leg. Physical examination at that time revealed nothing of importance except the moderate edema of the right leg below the knee, and the presence on both lower extremities, on the extensor surfaces below the knee of several bluish-red, raised nodules, varying from two to four centimeters in diameter, which were considered to be typical lesions of erythema nodosum. Three days later an acute painful swelling appeared on the right calf. This swelling was about five centimeters in diameter, the longest diameter being vertical. He felt perfectly well and had no systemic disturbance, except a slight rise in temperature, ranging from 99 to 101 degrees. There was no swelling of any of his joints. Complete rest in bed was advised, the right leg elevated and fifteen drops of the oil of wintergreen, together with thirty grains of sodium bicarbonate were given every four hours. On February 26th, a painful rounded swelling could be felt in the calf of the left leg, and there was considerable edema of the left foot and ankle. This was undoubtedly due to a phlebitis of one of the deeper veins of the calf.

On the fourth of March the patient felt some pain in the left groin and this was associated with tenderness and swelling extending four inches below Poupart's ligament, along the line of the femoral vein. The swelling of his left leg extended from the foot above the knee, and there was a small amount of effusion into the knee joint. The swelling of the left foot was so great that the bony outlines were obliterated and the circumference of the calf was increased from fourteen to sixteen and one-half inches. The edema remained about the same for one week and then began gradually to disappear. On the 29th of March he felt acute pain in his right groin, with tenderness, and a linear swelling appeared along the line of the femoral vein, and the right leg became markedly swollen, the calf measuring seventeen inches. There was also

a tense brawny edema on the outer and upper part of the right thigh. By this time the left leg had reached its normal size and the right leg remained very much swollen for about a week. Then the swelling began to disappear so that it reached its normal size about three weeks after the onset of the phlebitis in the right femoral vein. During all this time the erythema nodosum persisted, new lesions coming out in crops, and he suffered more or less from his stomatitis. His temperature varied from 100 degrees in the morning to 102 degrees in the evening. His appetite was good and except for the discomfort in his legs the patient was in good condition. About the first of April the veins on the surface of the abdomen began to enlarge, the distension of the veins being much more marked when the patient was in a sitting position. He complained of no abdominal tenderness but, nevertheless, we considered that there had been some obstruction of the veins within the abdomen. At the same time there appeared on the left side of the abdomen, just above the crest of the ilium, a tender swollen nodule, due to a phlebitis of one of the superficial veins of the abdomen. Blood cultures were taken on two separate occasions from the median basilic vein of the right arm by Doctor L. W. Ladd, but with negative results. The blood showed nothing abnormal, except a slight leucocytosis, the count being 12,000. On the second of April, Doctor Ladd took cultures from the unbroken vesicles in the mouth, sterilizing the surface with lysol, and obtained a diplococcus, which was very difficult to grow on the various culture media. However, he succeeded in obtaining a vaccine and on the seventh of April the patient was given an injection of 12,000,000 organisms into the subcutaneous tissue of the left arm. On the following day there was a severe local reaction at the site of the injection, his temperature rose two degrees and he felt quite ill. During the next week there was a slight drop in temperature, his highest afternoon temperature being 100 degrees. On April 16th Doctor Ladd gave him a second injection of 6,000,000 organisms, which was followed next day by a sharp rise in temperature to 105 degrees, severe pain in the left axilla associated with a pleural friction rub, shortness of breath, and a pulse rate of 140. The symptoms were very alarming and a hypodermic of morphin was necessary to relieve pain. A second hypodermic was given six

hours later and he passed a comfortable night. Next morning a small area of consolidation could be made out in the left lung, just below the angle of the scapula. His temperature kept up for another 24 hours, then fell suddenly to normal, the drop being associated with profuse sweating. The signs of consolidation in his lung disappeared entirely in two or three days. After the first injection of vaccine the vesicles in his mouth disappeared, and there has been no return of these or of his phlebitis during the succeeding nine months. On May 15th he was allowed to sit up in a chair, and one week later he walked a few steps. The lesions of erythema nodosum persisted until the first week in May. The condition of his legs gradually improved; at times there would be considerable swelling if he walked too much, but on the 27th of August he was able to play golf two and a half hours without any heaviness and discomfort, although he occasionally has some swelling in his right foot and ankle. At the present time he is in good health, but the veins on the surface of the abdomen are still somewhat distended, showing that there must have been considerable obstruction of the intra-abdominal circulation.

The point of interest in this case was the occurrence of phlebitis in so many different veins in a patient of rheumatic or possibly gouty tendency without much constitutional disturbance, and the subsiding of the phlebitis after the administration of the vaccine. It is impossible to say whether this was a coincidence or not, and yet it is very significant that the herpetic eruption in his mouth, from which he had never been entirely free for a period of fourteen years, disappeared after the first injection of vaccine and has not since returned.

In many of the cases recorded the inflammatory process seems to have been confined to the walls of the veins without much obstruction of their lumen, but in the present instance there must have been considerable obstruction to the flow of blood in the veins, as indicated by the extensive edema, and the distension of the veins showing an attempt at collateral circulation.

Instances of recurring thrombo-phlebitis have been recorded where heredity seemed to play an important part. The most notable of these is the case reported by Wilder Tile-

ston. This patient, a man of 35 years, had during a period of 16 years, eight attacks of thrombo-phlebitis in the lower extremities. Of 16 adult individuals, among this gentleman's ancestors and collateral relatives, eight have shown a marked susceptibility to venous disease in different forms.

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Privileged Communications Between Physician and Patient.

By BENJ. A. GAGE, Cleveland, Ohio.

It is believed that many practicing physicians and surgeons do not possess accurate knowledge of the nature, extent and limitations of the doctrine of **Privileged Communications**, so-called, and although it is not possible to treat the subject extensively in all of its numerous aspects within the limited time allowed, it is proposed to suggest and discuss briefly some of its practical phases.

I. What is Meant by the Term "Privileged Communications."

Interviews with numerous physicians disclose that it is commonly understood by them to comprehend any and all knowledge acquired by the physician from his patient while that relation subsists, and it is further generally believed that around such information so acquired is thrown by force of law the guard of absolute and unqualified secrecy, under all circumstances and upon all occasions. It is the purpose of this paper to dispel the error of this belief.

With reference to physicians and patients, Privileged Communications may be broadly defined to be those statements made by the patient to the physician, and the information acquired by the physician from the patient while the relationship existed, which, while relevant to matters in dispute, are rejected by the courts or made inadmissible by statute upon the ground of public policy.

This definition is broad enough to be consistent with the

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holdings in various States herinafter mentioned, but which holdings, however, are by no means uniform.

II. Origin.

The basis of all of our law is the common law of England, and though it has been frequently modified by statute in various States, we are compelled upon occasion to examine its precepts for guidance.

By that common law communications made by a *client* to his *attorney*, as such, were privileged, and the attorney might not be compelled to testify as to any knowledge gained by him from the client while the relationship existed. But communications made by *patients* to their *physicians*, as such, were not privileged and eventually our courts and legislatures came to recognize the fact that there was no adequate reason for according the privilege in the one case and denying it in the other.

As was said by the New York Supreme Court (77 N. Y. 569):

“The ground on which communications to counsel are privileged is the supposed necessity of a full knowledge of the facts to advise correctly and to prepare for the proper defense or prosecution of a suit. But surely the necessity of consulting a medical adviser when life itself may be in jeopardy is still stronger.”

It is, of course, manifest, that a complete and full disclosure of any and every fact, whether past or present, whether objective or subjective, whether pleasant or disagreeable, which may, in the judgment of the physician, have any bearing on the case at hand, is a prerequisite to accurate diagnosis and successful treatment.

The public health, of course, depends upon the health of individuals, and in this the State is vitally interested, and to insure such disclosures of fact by patients, without fear of repetition by the physician, many but not all of our States many years ago adopted statutes *intended* to prevent the divulging in evidence by the physician, against the patient's will, of information acquired by such physician in his professional relation with his patient. This class of evidence is rejected by the courts because, as has been said, “Greater mischiefs would probably result from requiring or permitting its admission than from any refusal to receive it.”

All of these statutes have the same purpose though they

vary in form, and the construction put upon them by various courts will be hereafter discussed.

III. Ohio Statute.

The source of the privilege in this State is found in *Sec. 11494 of the General Code of the State of Ohio*, a portion of which is as follows:

"The following persons shall not testify in certain respects. . . . A physician concerning a communication made to him by his patient in that relation, or his advice to his patient."

A careful reading of the quoted portion of this statute will at once make prominent the fact that the act falls far short of securing *absolute* secrecy on the part of the physician; that in fact it only prohibits *testimony* by such physician, or in other words, he is not permitted to *give evidence* in any legal proceeding as to communications made to him by his patients. And, contrary to the prevalent understanding, there is nothing in the act to prohibit a physician from divulging information acquired by him, and communications made to him by his patients, except as stated, so long as he adheres to the truth, and in the event of such disclosure there is no liability upon him for slander or libel, inasmuch as in such a case the truth is a complete defense.

If, however, he utters false statements concerning his patients, even though he believe them to be true, he is liable in an action for slander. *Alpin vs. Morton*, 21 O. S. p. 536. This is an interesting case. Evidence was offered that the defendant, a physician, had asserted in substance that the plaintiff, an unmarried girl, was pregnant, and his defense apparently was that he believed that to be true. The court, however, in its opinion said:

"A physician is not more protected from liability for his slanderous statements on the ground merely that he believes them to be true, than other persons. Indeed, the fact of his being a physician in cases of this kind, should be rather a ground of caution than of license in the expression of his opinions, except under such circumstances that they may be regarded what are termed 'Privileged Communications.' They cannot be regarded as such unless made in good faith, and the relation between the parties by whom and to whom the communication is made, is such as to render it reasonable and proper that the information should be given."

The judgment in this case for \$2,200 damages was affirmed,

but the court intimates, as has been seen, that a physician may divulge, to one particularly and peculiarly interested in the patient, facts which he believes to be true, without liability, if he acts without malice and in good faith.

IV. When the Rule Applies.

It is uniformly held that:

"In order for such statutes to apply it is necessary that the relation of patient and physician should exist, or at least that the circumstances should be such as to impress the patient with the belief that it does. It is not necessary, however, in order to exclude the testimony of the physician, that he should have been employed by the patient, for if this were necessary the fact that physicians are frequently called in by other physicians, or by friends, or even strangers, would to a large extent destroy the usefulness of the statute." 32 *A. & E. Enc. n. s.* 48.

And it seems to be generally held to be requisite, in order that the statutory privilege may apply, that the person consulted must be a duly admitted or authorized physician or surgeon under the law of the state, and that the information must have been acquired by him in his professional capacity and must have been reasonably necessary for intelligent treatment or advice. However, when a physician is sent to ascertain the state of health or condition of a person, under circumstances which do not lead the patient to believe that he is to be treated by such physician in his own interest, or that he is acting otherwise than in the interest of the person who sent him, the rule of privilege does not apply.

V. Application.

The doctrine has been held to prohibit the testimony of assistant surgeons, house and visiting physicians, etc., in hospitals, who, in the course of their duties or proper practice, interview or examine hospital patients, *Smart vs. Kansas City*, 208 *Mo.* 160. And to prevent the introduction of the hospital records, *Smart vs. Kansas City*, 208 *Mo.* 160, or records of Boards of Health, or original certificates signed by attending physicians. *Davis vs. K. of H.*, 165 *N. Y.* 159. The Supreme Court in this case very aptly remarked:

"The disclosure by a physician, whether voluntarily or involuntarily, of the secrets acquired by him while attending upon a patient in his professional capacity naturally shocks one's sense of decency and propriety,

and this is one reason why the law forbids it. The form in which the statements are sought to be introduced is of no consequence, whether as a witness on the stand, or through the medium of an affidavit, or a certificate; all are equally under the ban of the statute."

And courts have refused to receive the testimony of a physician as to conditions discovered by him which existed prior to his attendance, and for which he had not treated the patient, *Nelson vs. Oneida*, 156 N. Y. 219. The rule applies in all its force to physicians attending unconscious or dying persons, *Mayer vs. K. of P.*, 178 N. Y. 63, or those under such disability as lunacy, etc., 23 A. & E. Enc. n. s. 86. The rule applies not only to the physician in charge but to those attending or consulting with him.

On the other hand, some courts have permitted physicians called to attend victims of accident, to testify as to statements made by the patient as to the method or manner in which the accident occurred, *Green vs. Met. Street Ry. Co.*, 117 N. Y. 201. This decision, however, was rendered by a divided court, and a dissenting judge, in his opinion, justly observed:

"Under just such conditions an intelligent and successful physician might much more surely ascertain the probable or possible nature or extent of the injury by getting at the facts of the accident, than he could by the usual method of a diagnostician."

And when a physician is sent merely to ascertain the extent of the injury, or the circumstances attending the accident, with a view to defending a possible claim for damages, and the patient is not deceived but knows the object of the visit, the rule has no application.

VI. Laws of Other States.

For the purpose of comparison, excerpts from the statutes of a few of the other states bearing upon the subject are given.

New York: The New York enactment is as follows:

"A person duly authorized to practice physic or surgery shall not be allowed to disclose any information which he acquired in attending the patient in a professional capacity, and which was necessary to enable him to act in such a capacity."

Michigan: The statute of Michigan is very similar to that of New York, and it will be noticed that the word "information" is used instead of the word "communication" found in the Ohio statute, which gives the prohibition a much wider scope. It

will also be noticed that the prohibition is not limited to testimony but to disclosure. However, this is not effective to prevent a physician from disclosing, outside of court proceedings, information acquired by him in his relation with his patient, inasmuch as there is no penalty attached to so doing.

A recent Michigan statute (*Michigan Statutes 1905 Sec. 136*), provides that in prosecutions under the law for illegal marriage to diseased persons:

"Any physician who has attended or prescribed for any husband or wife for either of the diseases above mentioned, shall be compelled to testify to any facts found by him from such attendance."

North Carolina: By statute in North Carolina the presiding judge is given a discretion in the admission of confidential communications. The statute provides, among other things, as follows:

"That the presiding judge of the Superior Court may compel such disclosure if, in his opinion, the same is necessary to a proper administration of justice."

Iowa Statute:

"No . . . practicing physician . . . shall be allowed to give testimony to disclose any confidential communication properly entrusted to him in his professional capacity, as necessary and proper to enable him to perform the functions of his office."

This statute is very similar in terms to that of Ohio, and yet the Supreme Court of Iowa has frowned upon any attempts to limit its application and has given to the statute a liberal construction:

"The statute should have a liberal construction by the courts. Accordingly we have held that the expression "Confidential communications" as used in the statute is not to be restricted to the mere verbal statements made by the patient, but must be construed to include all privileged information acquired by the physician through his own observation or examination." *Baths vs. Railway Co.*, 124 Iowa 623.

Missouri:

"The following persons shall be incompetent to testify . . . A physician or surgeon concerning any information which he may have acquired and which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon."

This, if properly construed, seems a model statute, and the Supreme Court of the State of Missouri has uniformly given force to the reason of the rule and to the purpose of the act.

Indiana: The Indiana Legislature passed an act which prevents physicians testifying "as to matters communicated to them as such by patients in the course of their professional business, or advice given in such cases." The language of the Supreme Court in the construction of this act is interesting and is to be commended:

"It must be regarded as settled that the prohibition of the statute (subject to the qualification that the objection founded thereon may be waived by the patient himself, or by those who represent him), extends to all communications made by patients to physicians in the course of their professional business, to all advice given, and to all information acquired by the physician, by observation or otherwise, by means of his professional relation to his patient, and in his professional intercourse with him. All that the physician sees or observes is as fully within the statute as matters which are communicated to him by the patient."

Without detailing the facts in various cases in these states in which these statutes have been involved, suffice it to say that the courts outside of Ohio have uniformly discarded refinement of reasoning and have leaned toward a broad and liberal interpretation of the statutes in the endeavor not to narrow but to widen their scope, and generally have so construed the acts as to cover any information or knowledge acquired by the physician from his patient, whether by oral or written communication, or by observation, or examination while the relationship existed. Such a construction is manifestly the sensible one, and the only one which will give effect to the intent and purpose of the enactments.

Ohio: The rulings in Ohio, however, present a strong contrast to those above mentioned. In the case of *The Met. Life Ins. Co. vs. Howle*, 68 O. S. p. 614, one section of the syllabus is as follows:

"It is not competent to prove by a physician the communications made to him by his patient in that relation, but such physician may testify as to facts which are within his knowledge independent of such communication. *He may testify as to the condition and state of health of the patient as well as the treatment by him prescribed for his patient.*"

In other words, the Supreme Court of this state has limited the application of this salutary statute to actual oral or written communications made by the patient, and has greatly diminished the effect of the legislative act. It is manifest that if a physician be permitted to testify as to the objective symptoms disclosed by the patient, to his condition and state of health, and to the treatment prescribed, but little is left to the imagination, and he may well be permitted to disclose all that was told him by the patient, either orally or in writing.

VII. Nature and Duration.

The privilege accorded by these various enactments is personal with the patient and does not terminate with the cessation of the relation.

"The privilege with reference to the information acquired by a physician in the performance of his professional duties remains in force until removed by the patient, or his representative. It does not cease on termination of the relation by death of either the patient or the physician." 23 *A. & E. Enc. n. s.* 89-90.

The statute of Ohio contemplates a waiver of this privilege by the patient:

"But the . . . physician may testify by express consent of the . . . patient; and if the . . . patient voluntarily testifies the . . . physician may be compelled to testify on the same subject." *Sec. 11494 General Code.*

While there has been a diversity of holdings on the question as to whether or not the privilege might be waived after the patient's death, the better rule, and that supported by the greater weight of authority is that:

"The patient may waive the privilege for the purpose of protecting his rights, and the same waiver may be made by those who represent him after his death for the purpose of protecting rights acquired by him." *Jones on Evidence, Sec. 761.*

But in New York it has been held that if the patient did not waive the privilege during his life, the waiver could not be effected by others after his death. *Loder vs. Whelpley, 111 N. Y. 239.*

VIII. Other Phases.

Bearing in mind that in this state there is nothing in the law prohibiting a physician from revealing truthfully, outside

of legal proceedings, communications made to him by his patient, and knowledge acquired by him from such patient, interesting phases of the subject are suggested. Not infrequently in the practice of every physician occasions arise, which require no illustration here, when a physician doubtfully hesitates between that silence demanded by strict professional ethics, and that disclosure seemingly required by public interest and the welfare of society. The problem presented may be solved by considerations of the greatest good to the greatest number, and hence a physician's duty may be fixed at disclosure, but he is met by the practical suggestion, and the hard fact, that if a physician acquires a reputation for divulging supposedly confidential communications his patients will soon be few and his practice reduced to the minimum. It is not the purpose of this paper to undertake to solve such problems.

IX. Suggestions.

We have seen that the Supreme Court of this state, by interpretation of the statute, has narrowed its scope and limited its operation, and has confined the privilege given by the statute to written or oral communications merely. The remedy lies in the passage of another legislative act amending the present statute by the addition of words which shall make it clear and plain that the term "communications" shall include all information and knowledge of whatsoever sort or description, and however acquired, by the physician from his patient while that relation exists, and reasonably necessary for the purposes of diagnosis or treatment.

Grateful acknowledgment is given to Mr. Alfred Clum of the Cleveland Bar for his excellent article on Privileged Communications recently appearing in the *Ohio Law Reporter*.

1018 Rockefeller Building.

The Control of Dispensary Abuse.

Report of the Committee on Dispensary Abuse and Contract Practice to the Council of the Academy of Medicine.

For the sociological control of dispensaries and hospitals there are certain principles which your committee recommends for adoption by the Academy. In the present report, these principles will first of all be set forth, after which an account will be given of their applicability in the hospitals and dispensaries of Cleveland.

1. A rigorous system of sociological control should be adopted in the various dispensaries and hospitals. In the absence of such control many persons, who are able to pay for medical services, will use the dispensary or fill the wards of the hospital, who would not do so had they to undergo an investigation into their financial condition. It is the belief of the committee that the adoption of a rigorous system of sociological control will soon reduce the number of those who improperly take advantage of the dispensaries, etc.

2. The names of all persons receiving dispensary and free hospital aid should be filed in the clearing house catalogue of the Associated Charities and a record should be kept by the dispensary, hospital, etc. This record should contain such information regarding the sociological condition of the patients treated as might be of value to other charitable organizations using the catalogue. (A standard form of card is given at the end of this report.)

3. The door-plate or sign outside a charitable dispensary should bear the announcement that the dispensary is only for the poor. A sign reading "Free Dispensary" is misleading, especially to recent immigrants, and it can be used by unsuitable applicants as an excuse for abuse. On the labels of all bottles, etc., that go into the hands of the patients should also be conspicuously printed the fact that the dispensary is available only to persons unable to pay for private medical aid. These notices should be in English, in German, and such other languages commonly used in dispensary.

4. Before being admitted to any branch of the dispensary, or to the free wards of the hospital, all applicants should be questioned as to their worthiness as recipients of charity by some person or persons specially trained in such work, and who have nothing to do with the diagnosis or treatment of the case. Where, as a result of this examination, it is impossible to decide whether the case is worthy of charity but is obviously in such condition that it requires medical care, it should be admitted to the dispensary, etc., and the sociological condition afterwards investigated if possible by a charity worker, a nurse, or a district physician. This report should be immediately forwarded to the person in charge of admission to the dispensary, etc., with whom will rest the decision as to whether the case should be admitted. In cases

that do not require immediate treatment, admission should be refused until a written recommendation is presented from a physician, district physician or other charitable agency of the district in which the applicant resides.

Blank cards of the form appended to this report should be supplied to district and other physicians by the Health Board. The Council of the Academy of Medicine should request the Health Board to do this and should, in some way, make it known in the profession that such cards are available.

The applicant should be informed that facts regarding his sociological condition, brought out by the investigation, will be recorded, and his name will be added to the charities clearing house catalogue.

In emergency cases that are found not to be worthy of charity the committee recommends that the dispensary or hospital authorities should make the patient pay the usual fee for the first aid treatment rendered and that the patient should then be referred to his private physician, or if he has none, to some other physician who would then take charge of subsequent treatment. The fee collected by the dispensary, etc., for first aid should be applied for the expenses incurred in its sociological management.

5. When cases of intentional abuse become known to the person in charge of any dispensary, etc., a duplicate copy of the card containing the information obtained regarding the sociological conditions of the person should be forwarded to the other dispensaries and hospitals of the city.

6. When, as a result of being refused admittance, an applicant requests the name of some doctor, whose services he or she might employ, and there is no family physician, the person in charge of the dispensary should, as far as he can, recommend some physician practicing in the neighborhood in which the patient resides. This should be done as impartially as possible.

7. When cases of supposed dispensary or hospital abuse come to the notice of practicing physicians, the names and addresses should be transmitted in writing along with any information regarding the social condition to the person in charge of the dispensary.

8. All dispensaries should adopt a standard rating sys-

tem for the sociological condition of persons who seek their aid.

The rating decided upon should be stamped on the admission card and records, and it should be transmitted to other dispensaries as recommended in Paragraph 5.

The following rating is recommended:

A. Persons worthy of charity and with no prospects of betterment.

B. Persons who are temporarily worthy of charity aid.

C. Persons who can in justice be refused treatment for conditions not requiring professional services beyond their ability to pay.

THE LAKESIDE HOSPITAL DISPENSARY.

Since your committee was appointed there has been a radical change in the management of this dispensary, which there is every reason to believe will ultimately reduce abuse to the smallest possible degree. The management and sociological control of the dispensary has been placed in the hands of A. R. Warner, who has decided to devote his entire time to administrative and sociological work. Doctor Warner's position will be that of executive director and he will work under instructions and rules laid down by the dispensary committee of the Western Reserve Medical College and the dispensary committee of the Trustees of Lakeside Hospital. Working in association with the Associated Charities, Dr. Warner has planned a system of control for all branches of the dispensary, including the obstetrical dispensary, located on East 35th Street, which the committee considers satisfactory.

Under this new method of control, the names of all new patients to the dispensary or hospital are sent daily to the Associated Charities, where they are looked up in the clearing house catalogue and returned to the authorities at the Lakeside Hospital Dispensary with whatever information the catalogue contains.

The information which is thus supplied facilitates further investigation by the dispensary authorities in that it furnishes the names of any charities using the clearing house, from which the patient may previously have been receiving aid. By communication with these charities, facts regarding the real social condition of the patient can often be learned.

In the case of those names that are returned by the clearing house without any information, and in which there exists doubt as to their need of charity, it will be necessary for the dispensary to employ a nurse trained in sociological work, who, besides her other duties, would investigate, in their homes, the sociological status of the patients. Nurses for this purpose have not yet been provided, but there is every probability that they will be so in the near future.

In most cases where evidence is obtained that the person seeking dispensary treatment has been under the care of a physician, as a private patient, the physician in question will be communicated with and his opinion asked regarding the worthiness of the patient for dispensary treatment.

The director of the dispensary will be prepared at all times to make special investigation, in so far as he can, of any persons reported

to him in writing by a physician, as unworthily receiving dispensary aid.

The dispensary will furnish whatever information it may possess regarding the sociological condition of any of its patients when requested to do so by other charities.

Where an applicant, who has been refused treatment at the dispensary on account of his being considered able to pay for a physician, requests the name of a physician to whom he may go, the procedure recommended in Paragraph 6 of the foregoing report will be adopted.

A system of rating into three groups, such as that suggested in Paragraph 8, has been adopted.

All labels, cards, etc., to patients have printed on them that the dispensary is for the worthy poor only, as recommended in Paragraph 3 of the foregoing report.

CHARITY HOSPITAL.

The conditions under which the free dispensary at Charity Hospital is operated are such as to render regulation of dispensary abuse by the employment of paid social workers at present impossible. Regulation of the abuse has been constantly in the minds of all those working in the dispensary, yet we recognize the entire inadequacy of this method and realize that this work must be done by a social worker having no interest in the scientific side of dispensary work.

Charity Hospital is without endowment. The fee dispensary has been supported by various contributions; the income from a small endowment of \$1,500, nominal charges to patients when possible, and a small allowance by the Western Reserve University Medical College. But this income is barely sufficient for current expenses.

It is apparent, therefore, that the financial problem is the only obstacle to proper regulation since the dispensary has shown the necessity of its being by the number of actual poor for which it daily cares. Granting the obstacle is removed and sufficient income is obtained to meet the expense of a social worker the dispensary stands ready to join with the other charities of the city in preventing the abuse of these charities and returning such patients to their proper medical advisers.

THE CITY HOSPITAL.

Since August, 1910, there has been in operation a department of investigation which is intended as a nucleus of a social service. Although as yet there is only one experienced social worker to take charge of the large volume of work involved, the results have been altogether very satisfactory, and they have demonstrated the practical value of such work.

THE BABIES' DISPENSARY AND HOSPITAL.

Since its establishment this institution has been most ably administered with regard to its sociological control and the committee has all along considered it as a model of efficiency.

The committee regrets that its work has not been so extensive as it had hoped to make it, more especially in connection with the control of such important charities as the Tuberculosis Dispensary, Visiting Nurses' Association, etc. Finding that the whole field was too extensive, it has confined

its attention to the general principles which it believes should apply in all cases, and to one or two of the larger organizations, against which there existed complaint of abuse. The standard form of card recommended should measure six by four inches and should bear the following:

Recommendation for Admission to Free Dispensary or Hospital.

To be filled in by a district or other physician for cases which are believed to be worthy of charity.

To (name of dispensary, etc.).....

Name of Patient

Address

Referred by

For the purpose of

Information or assistance especially wanted.....

Please answer the questions on the reverse of this card. (A facsimile of the reverse of the card is given below.)

PATIENT'S SURNAME		FIRST NAME			
ADDRESS		CLASS	NO.	YEAR OF BIRTH	
		M. F.	M. S. W. D.	NATIONALITY	
NAME OF FATHER OR HUSBAND		WIFE OR MOTHER		RENT	
OCCUPATION OF SUPPORT OF FAMILY		EMPLOYER		POSSIBLE WAGE ACTUAL	
SOMEONE OR OTHER INCOME		CHILDREN WORKING	AGES	EMPLOYER	
OTHER DEPENDENTS					
PHYSICAL DEFECTS OR EXTENUATING CIRCUMSTANCES					
FAMILY PHYSICIAN					
DR.					
ADDRESS		NO. CHILDREN HOME	NO. MARRIED	TOTAL CHILDREN	TOTAL TOTAL
REGISTRATION		ASSIGNED TO			

On the Antiseptic Principle of the Practice of Surgery.

In the course of an extended investigation into the nature of inflammation, . . . I arrived several years ago at the

conclusion that the essential cause of suppuration in wounds is decomposition brought about by the influence of the atmosphere upon blood or serum retained within them. . . .

To prevent the occurrence of suppuration with all its attendant risks was an object manifestly desirable, but till lately appeared unattainable, since it seemed hopeless to attempt to exclude the oxygen which was universally regarded as the agent by which putrefaction was effected. But when it had been shown by the researches of Pasteur that the septic properties of the atmosphere depended not on oxygen, or any gaseous constituent, but on minute organisms suspended in it, which owed their energy to their vitality, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles. . . .

The material which I have employed is carbolic or phenic acid, a volatile organic compound, which appears to exercise a peculiarly destructive influence upon low forms of life, and hence is the most powerful antiseptic with which we are at present acquainted.

In conducting the treatment, the first object must be the destruction of any septic germs which may have been introduced into the wounds, either at the moment of the accident or during the time which has since elapsed. This is done by introducing the acid of full strength into all accessible recesses of the wound by means of a piece of rag held in dressing forceps and dipped into the liquid. . . .

The next object to be kept in view is to guard effectually against the spreading of decomposition into the wound along the stream of blood and serum which oozes out during the first few days after the accident, when the acid originally applied has been washed out or dissipated by absorption and evaporation.—Joseph Lister, 1867.

The Cleveland Medical Journal

CONTINUING THE CLEVELAND MEDICAL GAZETTE and
THE CLEVELAND JOURNAL OF MEDICINE

MONTHLY

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EDITORIAL

Reportable Diseases in the United States.

While we have always known that there was a plentiful lack of uniformity in the regulations for the reporting of disease, the actual state of things has been difficult to get at until the recent publications of the Marine Hospital Service dealing with the question in general and the reporting of ophthalmia neonatorum in particular.

Public Health Bulletin No. 45, dealing with the reportable diseases in the various States as set forth in their laws, brings out the great variety in the lists of such diseases, which range from a maximum of thirty-three in Pennsylvania to nothing in four of the States. The most widely reportable diseases are the endemic exanthemata, which are required to be notified in from

50 to 80 per cent of the States. Tuberculosis is reportable in 60 per cent, diphtheria in 75 per cent, typhoid fever and epidemic meningitis in 50 per cent, and poliomyelitis in 30 per cent. The epidemic diseases which are no longer endemic with us are reportable mainly in the States with notable maritime traffic, and even here a great deal of confidence appears to be placed in the Marine Hospital Service, for five coast States do not require the reporting of cholera, four that of plague, and two of the States in which *Stegomyia* is normally present do not require the reporting of yellow fever.

It must, however, be stated that in some of the States there is the additional precaution of legislation calling for the reporting of group diseases, such as "communicable," "contagious," "dangerous to the public health," "epidemic," "infectious," and "pestilential." Analysis brings out some interesting points. Perhaps the most interesting of these is the appearance of *venereal* diseases on the California and Utah lists, and syphilis alone in Porto Rico. Whether the reporting is enforced or not, the appearance in a State law is suggestive. Another very interesting development is the appearance of *industrial* diseases as reportable, showing an appreciation of the relations of the health of the worker to that of the community at large and to the efficiency of every day life. This point has also been noticed by Andrews of the American Association for Labor Legislation in the *Journal of the American Medical Association* for December 16th, 1911. In that year six States required reports of certain of the industrial diseases, mainly anthrax, compressed air illness, and poisoning from lead, mercury, phosphorus and arsenic. This change in methods was largely due to the report of the ten years' record of notification of such diseases in England where the reduction in industrial diseases has been progressive since the adoption of the laws requiring the reports, and the enforcement of penalties. This brings up another point of interest which is that in several of the States the question of compensation for the reports has been introduced, and payment has been begun. Whether a general adoption of the plan in this country would lead to as great a degree of improvement as it has in England cannot be safely predicted, on account of certain marked differences in conditions, but there is no doubt that at present the interepidemic reporting of the notifiable diseases is sketchy to a degree. Among a certain class of physicians the bump of responsibility to the public

is a depression and this state of mind is preserved in its native intensity by the lack of appreciation of the administrative side of the average community of the time worn proverb relating to prevention and cure.

The second pamphlet, No. 49, deals particularly with the reporting of ophthalmia neonatorum, and shows that prior to 1891 there was no official recognition of this disease as a menace to the community. Since that time about thirty of the States and Territories have enacted laws, which, while they vary in many respects, all aim to the reduction of the disease. The lowest form calls for reporting at once by the person in charge of the case, and there is a range from this to the compulsory treatment of all new born with prophylactic and the supplying of the necessary means by the State. The Bulletin brings out the facts of the relative number of cases of blindness due to this disease and it is clear that the free distribution of prophylactic will be an economy to the State in the reduction of the number of patients who are a charge on the community. But here again is the question of prevention versus cure, and for this reason progress will be slow, though in the present development of public opinion it will be also sure.

R. G. P.

"Natural" and "Synthetic" Sodium Salicylate.

Although sodium salicylate, guaranteed by reliable firms to be of pharmacopeial purity, may be bought for about fifty cents a pound, sodium salicylate made from salicylic acid obtained from oil of birch is sold at seven dollars a pound, and that made from salicylic acid obtained from oil of wintergreen costs fourteen dollars a pound. The arguments advanced for the employment of the expensive "natural" kind of sodium salicylate range from the most noncommittal to the most extravagant and dogmatic. For instance, one firm says in regard to its sodium salicylate made from oil of wintergreen: "The reputation of sodium salicylate was made on the product described, and, although purification by artificial means is possible, we continue the original acid and its salts." At the other extreme we have the suggestion, if not positive statement, of another firm which devotes much space to the exploitation of its own "natural" brand, that the synthetic sodium salicylate is a rank poison. Thus this firm has said:

"Prominent clinicians both in this country and abroad have warned the profession against the use of the artificial acid of commerce and its sodium salt. Their conclusions tend to show that commercial salicylic acid and its sodium salt

"Are slow but certain poisons.

Produce symptoms closely resembling delirium tremens.

Patients become delirious.

Are dangerous to human life.

Have to be watched and are not to be trusted.

Retard convalescence.

Should not be administered internally, however much they may have been dialized or purified."

Inasmuch as these oft repeated statements of the last firm have no doubt led many physicians to specify the outrageously high priced "natural" sodium salicylate, even though their patients could ill afford the expense, it is opportune that the claimed superiority of the "natural" sodium salicylate over the ordinary kind is to be studied critically. Under the direction of Torald Sollmann, the Council on Pharmacy and Chemistry of the American Medical Association is conducting a thorough investigation of the action of "synthetic" and "natural" sodium salicylate, which is to include chemical, pharmacologic and clinical work. The first report, consisting of a general discussion by Torald Sollmann and a pharmacologic investigation by J. A. Waddell, has just appeared (*Archives of Internal Medicine*, VIII, 1911, pp. 748-805). From Doctor Sollmann we learn that the evidence upon which interested parties have based their exploitation of the "natural" product consists of a few experiments by Charteris and Maclellan on rabbits (which exhibit considerable difference in their susceptibility to salicylates), made nearly twenty years ago with the product then on the market and admittedly impure, because the production of sodium salicylate from phenol was at that time a new industry. Doctor Waddell experimented with cats, rats and rabbits and was unable to find any difference in the action of the "natural" sodium salicylate and the "synthetic" kind.

Regarding the extension of the animal experiments to man Doctor Sollman says: "The extensive use which has been made of Charteris' results by the opponents of synthetic salicylates fortunately saves us the necessity of replying to

the line of argument which is usually put forward when experimental evidence conflicts with commercial interests.

"The cautious will always be careful in extending animal experiments to the human subject, and will keep an open mind until the clinical checks have been made. However, it may fairly be concluded that if a toxic impurity were really present in the synthetic samples, it would have manifested its dire effects in at least one of the three widely differing species of animals (cats, rats and rabbits) which were here used."

We shall look forward with much interest to the clinical investigation which is being conducted by the Council on Pharmacy and Chemistry and which we believe will prove that the claims for the superiority of the "natural," expensive sodium salicylate are without warrant. We shall also watch with interest the future advertising claims of firms which exploit "natural" sodium salicylate.

Exploitation of the Physician.

Osler once told a group of his students that there are only three things which a doctor should do with such money as he might earn: spend it for the necessities of life—and for luxuries, if there was any left; invest any surplus that he might have above his absolute needs in government bonds, or bury it in a secret hole in a dark cellar. If he did not limit himself to these relatively sound financial policies he would be too apt to invest his earnings in abandoned Mexican gold mines, in ten cent oil stock, or in imaginary rubber plantations. This statement is only an expression of the supposed gullibility of the medical man, of the belief that it is easy to sell a doctor anything—or rather nothing—at any price. That such a belief is shared by many would appear from the expensive and glowing advertising matter which most of us receive from the promoters of visionary projects. The latter gentlemen would seem to have the idea that of the suckers who are born every minute a large number finally make their way into the medical profession. Whether the doctor is as easily prevailed upon to part with his money as many would seem to believe may be doubtful. Moreover, what he chooses to do with his income is an individual and personal matter. It concerns money already earned and received, with which the doctor

may be permitted to do what most pleases him. The individual physician must himself protect his own earnings against the roseate assaults of the stock promoter. His failure to protect himself, his lack of business experience, his gullibility become important only when they make the doctor collectively rather than individually the mark of the politician, when they destroy not his earnings but his capacity to earn.

What was yesterday socialism is today sound political doctrine, and what is today anarchy may tomorrow become legislative idealism. Concerning the value and the outcome of the political unrest and the social ferment so evident throughout the world there must be differences of opinion. Every dog is said to have his day, and the under dog cannot be blamed for trying to have his. In the present political tendencies the physician must have an interest, as an intelligent citizen. He must, further, have a personal and professional interest when any measure involves his professional standing and existence. Physicians, like the intelligent members of other callings, will see in many of the legislative enactments whose aim is the betterment of the working classes the evidences of social uplift. But they cannot be blamed for objecting if the uplifting is to occur at the expense of the profession, if one class is to be seemingly bettered and certainly paternalized to the detriment of another. All the workingmen's compensation and insurance acts devised, in Great Britain, in Germany, in Ohio and elsewhere, have an important medical element; they must have such an element, since the strongest feature of such acts is the insurance against sickness or the compensation for injuries and for the surgical treatment of the latter. It is fair to assume that a sincere desire to help the class in whose favor such legislation is drawn lies at the bottom of such enactments. We may charitably ascribe the exploitation of the medical profession which results from such laws to the misunderstanding of medical ideals upon the part of the laity. When, however, the exploitation amounts to degradation we may be pardoned for feeling that an element of political jobbery may have entered into the legislation, that the gullibility of the doctor is being used as an asset by the professional politician who needs the votes.

Great Britain furnishes today the most striking example

of the attempted exploitation of the physician, of the apparent trading of whatever influence a small class may have for the votes of the proletariat. It is safe to say that the medical profession of no country has ever been stirred to such a storm of indignation and protest as the Lloyd-George Insurance Act has called forth from the British profession. The press, both lay and medical, is filled with reports of indignation meetings held everywhere, with accounts of the formation of protective associations, with letters of protest written by physicians. In so far as one can judge from such "literature" the profession is almost unanimously against the medical provisions of the Act, although there seems to be some division of opinion as to whether the Chancellor or the Council of the British Medical Association shall be chiefly anathematized. When the Act was up for consideration by Parliament the Association delegated to its Council the power of conducting negotiations whose aim should be the proper safeguarding of the profession. The incorporation of the following six points was demanded: (1) free choice of doctor; (2) medical benefits to be administered by local insurance committees and not by the friendly societies; (3) adequate medical representation on every authority, central or local; (4) an income limit of two pounds a week for those entitled to medical benefits; (5) medical remuneration to be what the profession considers adequate, having proper regard to the duties to be performed and other conditions of service; (6) the methods of remuneration adopted by each local insurance committee to be in accordance with the preference of the majority of the profession in that particular district. Because only the first three cardinal principles have been included in the Act the Council of the British Medical Association is accused of having "sold out" the profession and shares with Mr. Lloyd-George the condemnation of the profession. So strong is the feeling that, according to the weekly edition of the *London Times* for December 22, at a meeting hold in London upon that date the 2,000 physicians present sung with especial emphasis and feeling that line of "Rule Britannia" which reads "Britons never shall be slaves" and unmercifully booed Sir Victor Horsley, who attempted to speak for the Council. That so prominent a member of the profession should be greeted with cries of "Traitor!" is evi-

dence of the feeling which has been engendered. Active protest against the Act has taken two forms: a demand for the recall of the Council of the British Medical Association with the renewal of negotiations, and the signing of pledges which bind the profession not to render service under the terms of the Act. What the outcome of the upheaval will be is not yet apparent. What is evident is that the medical profession, when hit hard enough in a tender enough spot, is capable of presenting a rather strong front against an enemy and that practice under the terms of a contract in whose making the profession has little voice is undesirable.

How long it will be before measures like the Insurance Act of Great Britain are placed upon the statute books of the States of the American Union no one can tell. When the time comes it will be well for us to remember that the season for protest is before, rather than after, the law is made. In questions of politics the physician must become politician enough to demand some voice in determining the terms under which he shall work and the compensation that he shall receive for his services. He does not need to go to Great Britain to learn that he will be victimized if he leaves matters relating to his own welfare too entirely in the hands of the professional politician. The Supreme Court of Ohio has declared constitutional the Workingmen's Compensation Act, Section 23 of which reads: "Disbursements for first aid. The Board shall disburse and pay from the fund, for such injury, to such employes, such amounts for medical, nurse and hospital services and medicines, as it may deem proper, not, however, in any case, to exceed the sum of two hundred dollars, in addition to such award to such employe." We doubt very much that the profession of Ohio had sufficient voice, first in promulgating the plan of selecting the Board which will disburse "such amounts as it may deem proper;" secondly, in fixing two hundred dollars as the maximum limit of compensation; and, thirdly, in determining that two hundred dollars is proper remuneration for the services which would be necessary in the severer accidents.

O. T. S.

A Drug Journal Opposed to Nostrums.

Inasmuch as druggists by force of circumstances are com-

pelled to sell patent medicines which they themselves know, or should know, to be worthless, drug journals naturally have had little to say in support of the American Medical Association's propaganda for honesty in medicines. Only a few drug journals have had courage to further the Association's propaganda and thus to antagonize manufacturers of nostrums. One of these journals, *The Druggist Circular*, thus discusses the result of this propaganda (*Druggist Circular*, Jan., 1912, p. 4): "For exposing medical frauds many forces now at work have won the unbounded enmity of the fakers as well as of such of the so-called medical and drug journals as derive their revenue principally from the promotion of fakery. Among the forces to which we refer are the food and drugs officials at Washington, a few of the more enlightened lay periodicals, and the Council on Pharmacy and Chemistry of the American Medical Association, together with its mouth-piece, the Journal of the same association. Many of those who live by humbugging the people or derive their income largely from co-operating with and aiding and abetting those who do so live, can not contemplate with equanimity the forces which are being exerted for the purpose of turning on the light, but not all of them manifest their concern and discomfiture in the same way."

Regarding the journals whose income is threatened by the exposures of medical frauds the editorial says: "Those journals which go into spasms of futile wrath at the mention of any one of the several forces which are operating to purge the medical and pharmaceutical field of dangerous nostrums seem to be unable to realize that they are making ridiculous spectacles of themselves before people who see the cause of their animus and understand the motives which actuate them. Some of the journal publishers do seem to understand that to foam at the mouth and bite at any and everything that is operating to protect the trade and the public from the impositions of the frauds and fakers in the proprietary medicine business is poor policy, so they maintain attitudes toward the movement for honesty in drugs and medicines ranging from dignified silence to one in which they, in the language of Pope—

"Damn with faint praise, assent with civil leer,
And without sneering teach the rest to sneer;

Willing to wound, and yet afraid to strike,
Just hint a fault, and hesitate dislike."

Readers, generally, however, have grown much wiser regarding many things than they were a few years ago, and as just intimated, are becoming more and more able to discern the whereabouts and the nature of the Ethiopian in the nostrum woodpile. The number of people that may be fooled all the time is continually growing smaller."

DEPARTMENT OF THERAPEUTICS.

Conducted by J. B. McGEE, M. D.

Sodium Salicylate: In the December number of the *Archives of Internal Medicine*, Torald Sollman and J. A. Waddell report a comparative investigation of the effects and toxicity of sodium salicylates of natural and synthetic origin. Sollman states that there is a very prevalent, although not quite universal belief, that salicylates prepared synthetically are less effective and, especially, are more dangerous and more toxic than salicylates prepared from the "natural" methyl salicylate, that is, from unadulterated oil of wintergreen or oil of sweet birch. This subject is of great practical importance on account of the extensive use of salicylic compounds in medicine, and the tendency and often the absolute need of pushing the dosage to the very limit of tolerance. If there is in fact any material difference in the effects, prescribing should certainly be confined exclusively to the less dangerous variety. It is by no means certain that the specification "natural" always accomplished its object—a matter which may well arouse apprehension if there is a serious difference in the action. If there is no such difference it would be distinctly worth while to remove this apprehension and to encourage the direct prescribing of what one is more or less likely to obtain in any case. From either standpoint it seems important that this question of the relative toxicity of the salicylates of different origin should be definitely answered in one sense or in the other, and this paper is the first fruits of such investigation. Passing to the results reported by J. A. Waddell, it is evident that there is no difference in the effects or toxicity of the samples examined, the most carefully prepared and expensive "natural," and the cheapest "synthetic." This raises two further questions: (1). Can these conclusions be extended to man? and (2) can they be extended to all samples of synthetic salicylates? (1) Can the conclusions be extended to man? The cautious will always be careful in extending the results of animal experiments to the human subject, and will keep an open mind until the clinical checks have been made. However, it may fairly be concluded that if a toxic impurity were really present in the synthetic samples, it would have manifested its dire effects in at least one of the three widely differing species of animals (cats, rats and rabbits) which were here used. (2). Can the results be extended to all samples of synthetic salicylates? To this there can be only one answer: The fact that two samples of synthetic salicylates were pure does not prove that all samples are pure. It does prove, however, that there is no cause for the indiscriminate condemnation of all synthetic salicylates, even the purest, and that the cheapest "stuff" supplied by drug stores is not necessarily dangerous. If the cheapest brands are just as good as the "natural" it is probable that the standard "synthetic" brands are also good. Waddell's conclusions are: (1) No differences were detected between the brands of natural and synthetic salicylate examined, although the synthetic samples were the cheapest obtainable on the market. (2)

Sodium paracresotinate is not very much more toxic than sodium salicylate. (3) Mixtures of paracresotinate of sodium with natural sodium salicylate do not exhibit greater toxicity than the components: hence impurities of paracresotinate are probably of no great practical importance. (4) The symptoms of poisoning by sodium salicylate, administered hypodermically, are early vomiting (central) and reflex irritability and convulsions terminating in death from asphyxia (after acutely fatal doses within six hours, after just fatal doses in eighteen hours). The idiosyncrasies are moderate, being most conspicuous in rabbits, and least in rats; hence rats are best adapted for comparative tests.

Pneumonia: Solomon Solis Cohen, in the January number of the *American Journal of the Medical Sciences*, notes the favorable action of quinin and urea hydrochlorid in large doses under the skin in the treatment of acute pneumonia, lobar and lobular. There is a long standing tradition that quinin given early will abort an attack of lobar pneumonia. In an early experience he found that 60 grains of quinin sulphate given in error in a period of five hours, beginning two hours after the initial chill, apparently acted in this manner. Galbraith's revival of the treatment of pneumonia by quinin in massive doses led him to employ it in hospital work; soon, however, substituting hypodermic for gastric administration and choosing the most active salt of quinin, namely, the double hydrochlorid of quinin and urea, with which he has had such favorable experience in the treatment of malaria. The initial dose (regulated somewhat by the height of the temperature) is 1.0 to 1.6 gram (15 to 25 grains). This is followed in three or four hours by a second injection, and perhaps by a third, and even a fourth injection, at some time within the first twenty-four hours according to results. The same plan is pursued on the second day of treatment and on the third day, if necessary. Usually from six to ten grams are given in from forty-eight to sixty hours. After that smaller doses (five to ten grains, 0.3 to 0.5 gram, daily) are sometimes continued by the mouth. Cinchonism does not develop. Temperature and pulse rate fall gradually and proportionately, and respiration more rapidly with a tendency to restoration of the normal pulse-respiration ratio. Blood pressure may at first decline with temperature and pulse frequency, but soon returns to the former or a higher level; often it remains stationary or increases. The complete clinical picture, so far as regards the rational symptoms, objective and subjective, is favorably changed. The patient professes comfort; the pulse is full and strong, of moderate frequency and good tension; respiration is astonishingly easy, even when the rate is not markedly altered; the cough is greatly diminished; and delirium, if present, is abated or may even cease. Crisis does not occur. Termination is by lysis, at about the ordinary time, five to twelve days. The only critical phenomenon observed, and this but rarely and in slight degree, is perspiration. Usually there is some mild sweating with the early fall of temperature and respiration. In no case was a bad result observed that could be attributed to the drug. In the cases treated during the last two years sodium bicarbonate, or ammonium compounds, were given in sufficient quantity to keep the urine alkaline throughout the course of the attack, and this seems to have been of benefit. Following Galbraith's plan, tincture of ferric chlorid was given when the quinin was withdrawn. Lobular pneumonia was influenced favorably in a similar manner to lobar pneumonia. In making the injection the following precautions must be observed, otherwise there may be cellulitis, slough, or abscess: The syringe is filled with a 50% solution of the quinin and urea salt in sterilized water, and the needle is inserted deeply through skin previously painted with tincture of iodin into a muscle. The syringe is emptied thoroughly so that solution does not drop upon the skin when the needle

is withdrawn. The point of puncture is sealed with iodoform-collodion. Thousands of injections have been made in this manner without ill results of any kind.

Hypertension: Arthur R. Elliott, in the *Therapeutic Gazette* for December, considers the hygienic and dietetic treatment of arterial hypertension. In order to obtain a clear view of the problem involved, in control of high blood pressure, we must not lose sight of the fact that we are dealing with a symptom rather than a disease. We may perhaps venture the assertion that high blood pressure is a reaction to some form of systemic toxemia. Whether the case be primarily nephrotoxic, autotoxic or chemotoxic, the blood pressure elevation is probably produced by the circulating toxins. This fact of etiology being conceded, it follows that the first principle of treatment is to prevent the formation and absorption of pressor toxins. Failing in this, their removal becomes the next important object of attention. One great difficulty that confronts us at the outset of treatment in any given case of high blood pressure is in deciding whether we should or should not attempt to lower the blood pressure at all. The effects of arterial hypertension are mechanical, and compensatory adjustment soon alters the dynamics of the circulation to conform to the new status in the peripheral field. As Hare puts it, the tissues become accustomed to a new standard of pressure with which it is unwarrantable to interfere. To tamper much with the blood pressure by active treatment in certain cases, is almost certain to induce subjective discomfort and cardiac embarrassment. Another point it is well to bear in mind is the possibility that high blood pressure is not of itself the cause of most of the symptoms attributed to it, but that it is only when cardiac function becomes disturbed that symptoms of importance arise. A distinct advantage is gained if we can enforce occasional periods of rest in bed for our hypertension patients. A periodic week in bed on a low diet with daily massage will accomplish more for the inveterate case of high blood pressure than almost any other measure of treatment. Warm baths constitute a valuable measure of relief to these individuals. The generally accepted cardinal rules in the dietetics of high blood pressure are: (1) Reduction in the total quantity of food. (2) Limitation of protein. (3) Milk diet. (4) Fluid restriction. (5) Salt restriction. He advises, too, that psychological treatment of these cases be considered. They are easily encouraged, very easily depressed. It is a matter of therapeutic importance, therefore, to keep them hopeful and encouraged.

Anaphylaxis: John A. Roddy, in the *New York Medical Journal* for December 16, writes concerning diphtheria antitoxin and anaphylaxis. The occasional reports of untoward effect caused by diphtheria antitoxin have disseminated the belief that its administration is attended with some danger. Many believe the danger too trivial for consideration; a few consider it sufficient to contraindicate the use of antitoxin, or restrict its use to the treatment of frank, severe cases of diphtheria. The hypersusceptibility to a foreign serum or other substance which is induced by an injection of that serum, or proteid, is called anaphylaxis. Anaphylaxis is not manifested until after a second injection. A review of the English literature of the last two years discloses only seventeen cases of anaphylaxis in man, caused by horse serum, which were sudden in onset or alarming in character. All these cases terminated in complete recovery. J. C. Wilson, who has had a large experience with diphtheria antitoxin, states in a recent communication that he has never observed any ill effect produced by either a first or second injection. A first injection of horse serum into a man is innocuous: anaphylaxis is rarely manifested after a subsequent injection, and when it occurs com-

plete recovery usually follows. The danger of anaphylaxis is insignificant in comparison with the danger of diphtheria. The necessity of administering a second dose of diphtheria antitoxin and consequently the occurrence of anaphylactic phenomena can be almost, if not entirely, avoided by the proper administration of the first dose. The diphtheria bacillus secretes not one but several poisons. These are produced in variable proportions in different cases. If the first dose of antitoxin is a large one (from 30,000 to 40,000 units) all the different products of the diphtheria bacillus, toxins, toxons, and toxoids are anchored, and there is no need of a second injection. Seventy per cent of the patients who receive a first injection of a small number of units (3,000 to 10,000) do not have all the toxins and toxons neutralized. Under such circumstances the patient's condition does not improve as it should, and he receives a second injection, which is an unnecessary exposure to danger; or else his condition promptly improves as a result of the neutralization of one toxin and he does not receive a second injection, the remaining unneutralized toxin being just as free to cause paralysis as though no antitoxin had been given. When paralysis follows in such cases neither the injected serum nor the specific antibodies are responsible for the disaster. It is the failure to administer a sufficient number of units of antitoxin.

Hypoadrenia: In the *Monthly Cyclopedia* for December, C. E. deM. Sajous treats of hypoadrenia as a cause of death in infections and its treatment. In the course of many infections, especially among children, there are two very fruitful causes of death that are practically unrecognized, and the identification of which, on the other hand, yields a rich harvest of recoveries. Both include as lethal factor, arrest of the functions of the adrenals, which, from his viewpoint at least, entails arrest of pulmonary and tissue respiration. He refers to but one of these types, which he designates as "terminal hypoadrenia," meaning that form of adrenal insufficiency which occurs late in the course of a febrile disease as a result of exhausting secretory activity, probably aggravated by temporary local lesions to which the adrenals are subjected during the early or febrile period of the disease. In lobar pneumonia and broncho pneumonia, for instance, resolution may be considerably delayed; convalescence likewise. There is late in the case extreme adynamia and a low blood pressure; the temperature is below normal, the pulse is weak and more or less rapid, and death from heart failure is not infrequent. In typhoid fever hypoadrenia is commonly observed. As stated recently by Morichau-Beauchant, the adrenals seem to show a special susceptibility to certain infections. Diphtheria easily leads them all in this connection. Hutinel ascribes the fulminating cases of scarlatina to this cause. Other diseases sometimes present the typical syndrome of hypoadrenia, and Goldzicher concludes that in septicemia the appearance of low blood pressure is to be ascribed to insufficiency of the adrenals. As to treatment in this particular disturbance, opotherapy, or rather the use of adrenal gland, or of pituitary body, which acts very similarly but with less violence and more lasting effect, sometimes gives surprising results. Recovery is also materially aided by the rise of blood pressure which the adrenal product insures, and which causes arterial blood to be driven from the splanchnic area toward the peripheral organs, including the lungs and the brain. Josué, in typhoid fever, relieved threatening symptoms by injecting fifteen minims (one c.c.) of adrenalin (1-1000 solution) in one-half to one pint (250 to 500 c.c.) of physiological saline solution subcutaneously. The influence of the saline solution in these cases must not be overlooked, however. The reduction of mortality in pneumonia in the practice of men who have used saline solution has demonstrated its value. Moizard recommends adrenal organotherapy as soon as asthenia

and low blood pressure occur in any infection. Kirchheim has found large doses, 10 to 24 minims, safe hypodermically in the collapse of pneumonia, diphtheria and scarlet fever. These measures are only indicated in emergency cases, however. In the average case the glandulae suprarenales siccae of the U. S. P., administered by the mouth, are fully as effective, if a good preparation is obtained, as soon as asthenia and low blood pressure appear. The powder in three grain doses three times daily in capsules, gradually increased until five grains are given at each dose, usually suffices. When the cardiac adynamia disappears a small dose of thyroid, the desiccated gland $\frac{1}{2}$ grain, strychnin 1-60 grain, and Bland's pill 1 grain, added to each capsule, greatly hastens convalescence. For our knowledge of the action and uses of pituitary extracts in infectious diseases we are mainly indebted to L. Renon and Delille, who began their use in 1907; 1.5 grain of pituitary extract (of both lobes) at noon daily has been found extremely efficient in counteracting at once the depressed arterial tension, producing diuresis, overcoming insomnia, and greatly improving the general condition in infectious diseases. The results in pneumonia do not appear to him to warrant the use of any adrenal or pituitary preparations early in the case. They should be used only when a low blood pressure and other symptoms of hypoadrenia are present.

Ergot: Chas. C. Haskell, in the *Indianapolis Medical Journal* for December, considers ergot and the substitutes for it. Accuracy of dosage, the *sine qua non* of rational therapeutics, can generally be secured either by using certain pure principles, definite chemical compounds free from substances which are inert or detrimentally active or by using galenical preparations which have been assayed by chemical means and adjusted to a definite standard of strength. At present it is impossible to say which of the active constituents is to be desired in the therapeutic use of ergot. Dale, the greatest authority on the pharmacology of ergot, has only recently said that careful clinical observation alone can decide whether any one of these is sufficient to produce the typical ergot action. Possibly, as seems to be the case with digitalis, all of the active constituents are necessary. It would seem, then, that chemical investigation of ergot has not yet put us in a position to standardize accurately preparations of this drug by chemical methods. This being the case, it is not surprising to find that clinicians have endeavored to secure substitutes for ergot in obstetrical practice. As to the use of quinin, an analysis of the results, clinical and laboratory, shows that quinin evidently has a decided influence on the movements of the uterus. The effect of quinin, however, differs decidedly from that of ergot and the indications for the use of these drugs by the obstetrician are entirely distinct. Quinin, apparently, causes an exaggeration of the normal uterine movements, contraction and relaxation succeeding each other in their usual relation. Ergot, on the other hand, exaggerates the contractions at the expense of the phase of relaxation, tending to produce a tonic contraction and thus close the sinuses. It would seem then that quinin would be of value in the earlier stages of labor when uterine inertia is present, while ergot is indicated after the completion of the third stage. Pilocarpin has been found to be of decided value in stimulating the normal uterine contractions. Pilocarpin has other actions, however, which tend to make its use as a uterine stimulant inadvisable or even dangerous. As to the bark of cotton root, further observation is necessary to establish its value as an oxytocic.

Cardiac Dilatation: Louis Fangeres Bishop, in the *Medical Review of Reviews* for October, states that there is no more important subject in cardiology than dilatation of the heart, and this is a subject that has not been as well understood in the past as it is at the

present time. The causes of dilatation of the heart are any conditions that interfere with or exhaust the heart muscle, and interfere with its healthfulness. Of course, the first point in treatment is to obtain absolute and complete physical and mental rest. However, we have a drug that has the power of increasing the tonicity of the heart muscle and that is digitalis. First complete rest for the heart, and then, if necessary, digitalis. The other methods of value are those which may be considered as hygienic, viz., attention to the bowels, skin, diet, etc. The acute dilatation in patients with chronic heart and kidney disease is best treated by three procedures which are better than others. The first is the use of nitroglycerin, which will often cut short such an attack. The next procedure, where edema of the lungs is marked, is cupping of the chest. Then if these measures do not succeed venesection is advocated. It is also customary to use stimulants for the heart, but beyond nitroglycerin he is not sure that they have very much effect. These attacks are generally over in a half to two or three hours, and when stimulants are used one cannot be sure which one has done the work. Personally he is not in favor of the use of strychnin and digitalis and atropin, or in fact any of the things that are given under these conditions. He thinks that patients who get through their attack with a minimum amount of drugging are better off than those who are indiscriminately drugged by an excited and worried physician, or in the absence of a physician, by a frightened nurse.

Review of the Progress of Medicine.

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Cerebral Rheumatism

In the *Gazette des Hopitaux* for January 3, 1912, M. J. Debertrand reviews at length the subject of cerebral rheumatism, meaning thereby all the cerebral manifestations of acute rheumatic fever. The term originated with Hervez de Chegoin in 1845. Since then many names have been associated with the condition, among them Trousseau, who described a variety of clinical forms.

In the *etiology*, two facts are emphasized. First that cerebral symptoms may appear in all forms and in all stages of acute articular rheumatism. Second, that acute rheumatism as a rule does not readily cause cerebral symptoms in people who have no hereditary or acquired tendency to mental disturbances. However, the hysterical or epileptic taint seems rather to confer a relative immunity. The frequency of cerebral symptoms is given at from one to four per cent of all cases.

The *pathology* is taken up in detail. Some cases show absolutely no demonstrable post mortem changes. More commonly there are marked hyperemia and edema of the meninges and of the frontal lobes and base of the brain, with an increased amount of cerebrospinal fluid both in the subarachnoid space and in the ventricles. The rheumatic toxin seems here as elsewhere to attack primarily the vascular system. The white matter of the brain may show hemorrhagic areas. Microscopically, there are extensive changes, the pyramidal cells showing all grades of disintegration.

The *bacteriology* is rather indefinite. The bacillus of Achalme-Thiroloix and the diplococcus of Triboulet-Coyon have been found in the cerebrospinal fluid, although as a rule the fluid is sterile. These same organisms have also been obtained by lumbar puncture in acute rheumatism without cerebral symptoms.

In the *pathogenesis* of the condition, many English writers describe the mental change as primarily a cardiac psychosis. Hyperpyrexia is always important. Hepatic or renal insufficiency is frequently a factor. The effect of medicine has probably been exaggerated. Various drugs and

therapeutic measures have been credited with it—even blood letting in the time of Trousseau.

The *symptoms* may have a sudden, severe and unexpected onset. Usually however, there is some premonition, often in the form of violent headache, backache, rapid subsidence of pain in the joints and high fever. Then sudden mental changes supervene, with restlessness and dyspnea, anxiety, fear of death, etc., finally disturbances of vision, hallucinations, violent spasmodic contraction of the face muscles and convulsive movements of the arms (rheumatic epilepsy or epileptiform chorea). The temperature ranges from 104° to 108° . In the final stages asphyxial signs appear, coma, cyanosis and marked circulatory instability.

The *clinical forms* may be classified as follows: I. According to course: 1. Very acute and fatal form with violent delirium. 2. Chronic form, in convalescence, with mania or melancholia. II. According to age: 1. Children; may occur pure, but usually with chorea. 2. Adults. III. According to predominance of certain symptoms. Two distinct forms: 1. Coma from onset; hyperpyrexia, asphyxia. 2. Headache; violent, with vomiting.

The *prognosis* in the acute cases is bad. Death may occur in fifteen minutes to two hours, oftener in one to two days. The chronic cases with mania and melancholia and choreic tremors recover slowly after weeks or months, often leaving some mental enfeeblement.

The *diagnosis* is usually easy. However, the following conditions with their chief points of differentiation must be considered: I. Simple nervous delirium (mild and tranquil). II. Delirium from salicylates (appears suddenly without temperature, the pulse being slowed); delirium of cinchonism (rash). III. Delirium tremens (prodromes, tremor, no fever). IV. Delirium of uremia (continued hallucinations; urinary findings). V. Acetonemia (acetone in the urine). VI. Meningitis, influenza, with cerebral or meningeal hemorrhages (lumbar puncture).

Vigorous hydrotherapy is the main factor in the *treatment*, the temperature largely determining the outcome of the case. There are no contraindications to the baths and no dangers from their use. Salicylates may be replaced by sedatives during the delirium. Bleeding, purging and lumbar puncture are also recommended.

Luetin Reaction

Noguchi (*Journal of Experimental Medicine*, December, 1911, p. 557) soon after obtaining pure cultures of *Treponema pallidum* commenced the study of the development of a cutaneous reaction in syphilis. Two strains of the *pallidum* were used. Pure cultures were allowed to grow for periods of six, twelve, twenty-four and fifty days at 37° C. under anaerobic conditions. One was cultivated in ascitic fluid, containing a piece of sterile placenta, and the other in ascitic fluid agar also containing placenta. The lower portion of each solid culture in which a dense growth had occurred, was cut out and the tissue removed. The agar columns which contained innumerable spirochaetae were then carefully ground in a sterile mortar. The resulting thick paste was gradually diluted by adding, little by little, the fluid culture which also contained an enormous mass of the pure organisms. The dilution was continued until the emulsion became perfectly liquid. The preparation was next heated to 60° C. for sixty minutes in a water bath, and then 65% carbolic acid was added. When examined under the dark field microscope, 40 to 100 dead *pallida* per field could be seen. To this suspension Noguchi gives the name luetin. In making the test on human subjects the upper arm was used and an injection of 0.05 c. cm was made intradermically with a very fine needle, an injection of the control suspension also being made. Three types of positive reactions were obtained. 1. The papular form; a large raised, reddish, indurated papule, usually five to ten millimetres in diameter, makes its appearance 24 to 48 hours. 2. The pustular form; the be-

ginning and course of this reaction resemble the papular form until about the fourth or fifth day, when the inflammatory processes commence to progress. The surface of the indurated round papule becomes mildly edematous and multiple miliary vesicles which become pustular form. 3. The torpid form; in rare instances the injection sites fade away to almost invisible points within three to four days, so that they may be passed over as negative reactions. But sometimes these spots suddenly light up again after ten days or even longer and progress to the formation of small pustules.

In all, 400 cases, comprising 177 syphilitics, 77 parasyphilitics and 146 controls, have been studied. The conclusions reached are as follows: 1. Luetin produces a similar cutaneous reaction in syphilitics and parasyphilitics that is most constant and severe in the tertiary and hereditary affections. In Noguchi's series of cases it was present constantly (100 per cent) in the manifest tertiary, in 94 per cent of the latent tertiary and in 96 per cent of the hereditary affection. 2. During the primary and secondary stages the reaction is infrequent, and when present it is of mild degree. An exception has been found in cases in which energetic treatment has been or is being carried out and in which clinical signs of syphilis are absent. Such cases may show a severe reaction. Apparently this is true especially of the cases treated with salvarsan. 3. In certain cases of old infection in which no treatment has been taken and in which no symptoms have appeared for many years, and in the course of which miscarriages have not occurred, the cutaneous reaction has failed to appear. But, despite the absence of symptoms, mothers who have young syphilitic children have usually given the reaction.

Tabetic Arthropathy

Max Krueger in the *Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie*, 1912, Vol. XXIV, p. 109, speaks of the quite general lack of familiarity of the profession with tabetic arthropathy and of the confusion of that condition with neoplasms (especially sarcoma), tuberculosis, rheumatism and arthritis deformans. He reports in detail a number of cases of especial interest and discusses the subject in general. The important points may be summarized as follows:

1. There may occur simultaneously in the tabetic joint a process of destruction, in the form of an ulcer or depression on the joint surface, and a process of construction or deposition, especially in the periarticular structures.
2. Trauma, as an exciting cause is important in the etiology.
3. Possibly the condition may begin as a gummatous periostitis. One of the writer's cases had a periostitis of the jaw and a Charcot knee-joint at the same time.
4. The effusion into the joint is usually bloody.
5. Arthropathy may be the first manifestation of tabes.
6. The Nonne reaction from the cerebrospinal fluid is nearly always positive and of considerable help in the diagnosis. The test is simple and is done as follows: To one c cm of cerebrospinal fluid is added one c cm of saturated solution of ammonium sulphate. Opalescence in 33 minutes indicates a positive reaction. Distinct cloudiness indicates a more intense reaction. It is usually positive in tabes, paresis and cerebrospinal lues and negative in epilepsy, alcoholism and brain tumor. Multiple sclerosis shows a weakly positive reaction in 25 per cent of cases.
7. The course of tabetic arthropathy is always progressive.
8. Active syphilitic treatment should always be tried.
9. The joint should be protected from trauma by some supporting appliances.
10. Extensive operations usually fail. Amputation is preferable to resection.
11. There is considerable tendency to septicemia following any interference.

New and Non-Official Remedies.

Since January 1 the following have been accepted for inclusion with New and Nonofficial Remedies by the Council on Pharmacy and Chemistry of the American Medical Association:

Lactic Bacillary Tablets, Fairchild Bros. & Foster, New York.

Salvarsan, Victor Koechl & Co., New York.

Neisser-Bacterin Mixed, H. K. Mulford Co., Philadelphia.

Pneumo-Bacterin Mixed, H. K. Mulford Co., Philadelphia.

Scarlatina-Bacterin, H. K. Mulford Co., Philadelphia.

Typho-Bacterin Mixed, H. K. Mulford Co., Philadelphia.

Rabies Vaccine, H. K. Mulford Co., Philadelphia.

Widal Test—Borden's Modification, H. K. Mulford Co., Philadelphia.

Von Pirquet Test for Tuberculosis, H. K. Mulford Co., Philadelphia.

Bass Test for Typhoid Fever, H. K. Mulford Co., Philadelphia.

Gynoval, Farbenfabriken of Elberfeld Co., New York.

Descriptions of the first two appeared in the *Journal of the American Medical Association* for January 20, page 191, and of all the rest except the last in the *Journal* for February 3, page 343.

Academy of Medicine of Cleveland.

ACADEMY MEETING.

The eighty-eighth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, January 19, 1912, the Vice President, F. W. Davis, in the chair.

E. O. Houck presented a case of diffuse symmetrical lipoma (to be reported in full later).

The program was as follows:

1. Water Filtration Plants: Mechanical Considerations and Construction, by R. W. Pratt (appearing in full on page 100). The paper was illustrated by a series of lantern slides showing the details of the construction and operation of the slow sand and rapid mechanical types of water filtration.

R. G. Perkins, in the discussion, said that it was profitable to have the figures relating to the cost of construction and maintenance of filtration plants placed before us at this time when the question of water filtration was of such great local importance. He asked whether there is any definite rule in regard to turbidity in making a decision in favor of slow sand or mechanical filtration, or whether other factors must also be considered.

F. T. Kopfstein asked concerning the conclusions reached by Mr. Pratt in regard to a Cleveland filtration plant in his recently submitted preliminary report. He said that there is no clay in our present water and wished to know whether slow sand filtration would, therefore, be better.

J. G. Spenser pointed out that in certain European cities provision is made for supplying unfiltered water for manufacturing and fire fighting purposes and asked if, in the consideration of local questions, attention had been given to the supplying of unfiltered water for emergencies, such as fire.

R. W. Pratt said that in the report submitted to the City Council the question of sewage disposal alone was taken up. Approximate estimates of the cost of low and high efficiency disposal were given. It was shown that low efficiency sewage disposal and water filtration would be more economical than high efficiency disposal and that the former would give a safer water because, no matter how efficient Cleveland's disposal of its own sewage might be, sources of contamination outside the city could not be controlled. In a general way the first mentioned plan was recommended for Cleveland. There must be an experimental plant before a proper final decision can be reached. He stated that, while the degree of turbidity is the main factor in determining the type of filtration, other factors must also be considered. It was found at Camp Perry that Lake

Erie water contains considerable clay, especially when turbid, the clay coming from the bottom of the lake. In regard to a supply of unfiltered water for fire emergencies, he pointed out that the down town district of the city is already equipped with the high pressure service, which derives its water directly from the river or the lake; furthermore, the clear water well of a large enough filtration plant would hold a supply of filtered water sufficient for six to eight hours, which would certainly be adequate for any fire. The cost of filtering enough water for fire supply during the year would add little to the cost.

2. Water Filtration Plants: Sanitary Considerations, by R. G. Perkins (appearing in full on page 103).

J. G. Spenser asked if investigations had shown that certain species of bacteria could penetrate into the sand filter more deeply and pass through it more readily than other species.

P. A. Jacobs wished to know whether there were any instances of the contraction of disease, typhoid more particularly, by the workers in filtration plants.

R. G. Perkins said that there were variations in the readiness with which different species of bacteria penetrate sand filters. He had seen no record of the contraction of disease by filtration plant workers and did not think that there was any danger from bacillus carriers because of the hygienic regulations enforced upon the workers.

EXPERIMENTAL MEDICINE SECTION.

The fifty-ninth regular meeting of the Section was held at the Cleveland Medical Library, Friday, January 12, 1912, F. C. Waite in the chair.

1. J. D. Pilcher presented a paper upon the Effects of Caffein on the Mammalian Circulation (published in full on page 35.)

Torald Sollman, in discussion, said that the facts found were at variance in some important points with accepted views. All the effects noted had been mentioned in the work of practically all authors, but some had emphasized one point, some another. The experimental work reported seems to explain these discrepancies. Stimulation of the heart by an increase of muscle tone had not been sufficiently pointed out before. The effects upon the blood vessels differ from the results of others, caffein being generally supposed to have a constrictor action. Actually there is vascular dilatation, due to the peripheral effect, resulting in lessened vascular tone. At the same time the vasomotor center is stimulated, but there is little rise in blood pressure because the two effects counterbalance each other. The combined action of caffein upon the heart muscle, the vasomotor center and the peripheral vessels leads to an increased flow of blood through the vessels.

W. H. Merriam stated that caffein might have practical value if its action in preventing the constrictor effect of epinephrin would hold true in vasoconstriction due to other causes, such as nephritis, etc.

F. C. Herrick asked if, when caffein is given in the presence of alcohol, the stimulating effect upon the heart would not be increased.

J. D. Pilcher said that he found that small doses of alcohol sensitize the heart to the action of caffein; whether this could be of value therapeutically appeared doubtful. Theoretically, at least, vasoconstriction due to whatever cause would be prevented by caffein, just as the constriction by epinephrin is prevented. As a matter of fact diuretin, another of the xanthin derivatives, is used clinically for the purpose of decreasing vascular tone.

2. Torald Sollman and P. J. Hanzlik reported the results of Investigations on the Intestinal Absorption of Drugs (to appear in next issue).

3. C. F. Hoover reported the results of a study of the Composition of the Alveolar Air in a Case of Chronic Cyanosis Without Dyspnea. In the patient studied there is striking cyanosis but no discomfort in breathing. His lungs are emphysematous. The costal angle remains stationary or even becomes less during breathing. There is slight cardiac dilatation, but no venous distension and no evidence of disturbance in the mass movement of the blood. The question arises whether the patient's tolerance of his cyanosis is due to some defect in external or internal respiration. Oxygen inhalation with the resulting increase in the partial pressure of oxygen in the alveolar air had no effect upon the cyanosis. The carbon dioxid content of the blood must be increased above the normal. In normal persons it was found that holding of the breath after expiration increased the partial pressure of carbon dioxid in the alveolar air from 4.68% or 5.2% to 6.7%, not a very great difference. Holding the breath after deep inspiration gave the same results, the carbon dioxid content was again 6.7%, in spite of the longer period during which the breath could be held. It would seem, therefore, that the increased carbon dioxid content is the cause of the respiratory stimulus which leads to breathing after holding the breath. In the patient it has been repeatedly found during the past year that the partial pressure of carbon dioxid in the alveolar air has never been less than 7% and usually is 8%. After oxygen inhalation it was found that the oxygen content was increased but the carbon dioxid content was not decreased. The minute volume of air was found to be 8.53 liters, the composition of which was: carbon dioxid 3.84%, oxygen 15.94%. The composition of the alveolar air was: carbon dioxid 9.77%, oxygen 10.73%. With a minute volume of 8.53 liters the alveolar air quantity was 3.35 liters; therefore, in spite of the large minute volume the patient was not ventilating his lungs properly. We cannot explain the increased carbon dioxid partial pressure by supposing that a portion of the lung forms a carbon dioxid well. We must conclude that between the infundibula of the lung and the teeth there must be an increased dead air space which is capable of distension and retraction. The mass movement of the blood was increased during oxygen inhalation, but the cyanosis was not diminished. Atropin had no effect in decreasing the carbon dioxid content of the alveolar air.

Torald Sollman, in the discussion, asked if the ventilation of the lungs was as great during oxygen inhalation as during ordinary breathing. If so, one must conclude that the oxygen is prevented from reaching the blood. The possibility of changes in the hemaglobin which prevent oxygen absorption must be considered. A theoretical physical explanation might be a lung which followed the excursions of the chest to the fullest extent, but in which some change, perhaps in the blood vessels, prevented the entrance of oxygen into the blood. The fact that there is no dyspnea with the high carbon dioxid content must indicate tolerance of the medulla to carbon dioxid.

J. J. R. Macleod said that the striking thing in the case was the high carbon dioxid percentage. This must mean that the blood contains a carbon dioxid tension nearly 50% above the average normal. Haldane has shown that the respiratory center is attuned to a definite carbon dioxid percentage in the blood. In the case reported there must be dulling of the respiratory center, so that it is less excitable to carbon dioxid. In addition all the cells of the body must have an increased carbon dioxid tolerance; there must be decreased internal respiration; the patient must have a chronic carbon dioxid intoxication. It was hoped experimentally to prove the increased tolerance to carbon dioxid, but the theory of increased tolerance failed of experimental proof. It was felt that the only explanation was an increased dead air space which acts as a carbon dioxid reservoir. It was hoped that estimations of the gas content of the blood could be made.

W. H. Merriam called attention to the association of pulmonary

sclerosis with kyphosis and asked whether the latter condition had been present in the cases of pulmonary sclerosis seen by the author.

C. F. Hoover said that in persistent cyanosis one always thinks of pulmonary sclerosis. In the cases of this condition that he had seen there were remissions of the cyanosis from time to time. In this patient there had been no such remissions. Against localized vascular change in a portion of the lung as an explanation of the conditions reported is the fact that 60% of the air space may be thrown out of function without cyanosis. In the pneumograph the patient had had slumber apnea, but no waking hyperpnea. He recently returned to the hospital more cyanotic than ever and in a very somnolent condition. It would seem that the patient's carbon dioxid threshold has been raised still higher above his own already high average, because he no longer had slumber apnea. Never has there been any evidence to indicate that the pulmonary circulation is interfered with.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The fifty-eighth regular meeting of this Section was held at the Cleveland Medical Library Friday, January 26, 1911, S. H. Large in the chair.

S. H. Large, re-elected Chairman at the last meeting, had been found ineligible because of the constitutional provision which prevents the re-election of a chairman. W. E. Bruner was then elected Chairman of the Section.

W. C. Tuckerman presented a patient who six months ago got a piece of steel into the left eye. Immediately after the injury there was some pain, but the lesion was supposed to be only a corneal cut. Since the injury the patient has not seen well. About one month ago mydriasis appeared. The pupil is now dilated and sluggish and a tract can be seen from the cornea through the lens. The iris has a yellowish green tinge. Vision is 2/60. X-ray examination has showed no foreign body. The cataract is fairly diffuse.

C. C. Stuart said that he had seen a few cases like the one shown by Doctor Tuckerman. In one there was complete cataract following the possible entrance of a piece of steel, although no definite wound of entrance could be seen. The change in the color of the iris was even more pronounced than in the case shown. Cataract extraction was demanded but the operation was followed by a poor result—adhesions, with a loss of tension. He felt that in such cases care should be used in deciding upon an operation, especially when there is change in the color of the iris.

J. E. Cogan judged that in all probability there must be a foreign body in the eye. Unless removal of the lens also removed the foreign body the prognosis must be bad.

R. B. Metz believed that the foreign body must still be present. There was too much reaction for a simple concussion. The body may have passed through and beyond the lens. He did not think that the discoloration of the iris was due to siderosis but to inflammatory reaction.

W. E. Bruner suggested that there might be a low grade uveitis and disorganization of the vitreous, which would make operation dangerous. Until the foreign body could be definitely located removal of the lens alone was inadvisable.

W. C. Tuckerman asked whether the absorption of a piece of steel could be helped by treatment.

The regular program was as follows:

1. Report of a Case of Traumatic Cataract from an Unusual Cause, I. A. Tripp (to be published in full later).

J. E. Cogan pointed out that only glass which contains lead can be detected by means of the X-ray.

C. C. Stuart and Edward Lauder each said that he had seen several similar cases of injury to the eye, due to glass. Injury of this kind seemed to be rather frequent in locomotive engineers, caused by the bursting of water gauges. Although the injured eye may remain quiescent for several days, as in the case reported, the later damage is usually severe. In a case seen by Edward Lauder failure to do a radical operation was followed by severe sympathetic inflammation of the uninjured eye, which could not be controlled until the stump of the injured eye was completely removed.

W. E. Bruner said that in the only similar cases of injury by glass that he had seen there was question of rupture of the fundus.

I. A. Tripp stated that the interesting thing was that the eye had remained quiet for ten days after the injury.

2. S. H. Large showed a number of specimens. Two consisted of pieces of bone which had become lodged in the esophagus; in such cases removal of the foreign body under cocain is usually not difficult. In another case a piece of heavy copper wire three inches long had been thrust into the nose between the middle turbinate and the septum to such a depth that the end was no longer visible. Another case was that of a boy who had placed a piece of wheat in the mouth; the next day there was pain under the tongue; some time later the submaxillary gland became swollen and painful, the duct being patent; the gland was dissected out; upon incising it no pus was present but a wheat barb was removed; suture of the gland was followed by complete recovery. He showed also a small bony tumor of the middle ear, removed by entry through the external auditory canal.

W. H. Tuckerman said that he had seen two cases in which he felt that exostosis of the middle ear might be the result of chronic mastoid disease.

W. C. Tuckerman recalled that in certain sections of the country injury to the paws and about the mouth and head in dogs, due to the entrance of the barbs of foxglove, was fairly common.

3. W. E. Bruner presented a Report of a Case of Retrobulbar Neuritis and Optic Atrophy, probably Hereditary. The patient, a male aged 36 years, had worn glasses for nine years, but had experienced no especial difficulty until last July, when blurring and dimming of the vision began. The family history showed that one brother at the age of 29 years had failing eyesight, which was said to be due to optic neuritis, probably hereditary; of six sisters, one at 32 years had had difficulty, which was due to an iritis, probably specific. The son of one of the sisters, a physician, has at present optic atrophy with central scotoma, which is believed to be hereditary. The hereditary type of optic neuritis and atrophy occurs usually in the males of a family, but is transmitted through the females. In the patient reported there is nothing in the general nervous system, a specific history is denied and the Wassermann reaction has been negative. Examination shows a central scotoma, which has increased somewhat since the first examination. Blue can be recognized, but not red and green. There was slight edema of the optic nerve at first; this has decreased, but the whitening of the nerve has increased. The case is looked upon tentatively as one of hereditary optic atrophy.

W. E. Bruner, in reply to a question, said that hereditary optic atrophy usually begins between the ages of twenty and thirty years, although it may begin earlier or later.

COUNCIL MEETINGS.

The Council met January 4, the President, J. V. Gallagher, in the chair.

The application of H. L. Plannette was ordered published. The application of J. O. Glass was referred back to the Membership Committee.

E. P. Monaghan was appointed Chairman of the Membership Committee. It was ordered that no appointment be made to the Ohio State Medical Association Committee on Public Policy and Legislation.

F. C. Waite called attention to a vacancy which will occur in the State Board of Medical Examination in April; referred to the Legislative Committee.

C. E. Ford asked the opinion of the Council upon the publication of health articles in the newspapers; referred to the Civic Committee.

At a meeting of the Council held January 16, the President, J. V. Gallagher in the chair, the resignation because of removal from the city of Robert Pollock was received, and he was placed on the non-active list for one year. The Secretary was directed to refund to E. P. Schaffter, now of Liverpool, England, \$2.00 overpayment on dues received at the time of his resignation. The application of Rixford D. Way for associate membership in the Veterinary Section was ordered published.

The following committee appointments were made: A. S. Storey, Chairman of the Civic Committee; C. E. Ford, Chairman of the Legislative Committee; H. J. Gerstenberger, A. F. Furrer and J. J. Thomas, members of the Milk Commission.

The report of the Secretary that he had arranged with Mr. C. J. Harding to operate the projectoscope at \$2.00 per evening was approved.

H. A. Sanford and O. A. Weber were appointed a committee to confer with the *Cleveland Medical Journal* and the Cleveland Medical Library Association concerning arrangements for the coming year.

Book Reviews.

Scientific Features of Modern Medicine. By Frederick S. Lee, Ph. D., Dalton Professor of Physiology, Columbia University. The Columbia University Press, Lemcke & Buechner, Agents, New York, 1911.

This small, attractive volume is a series of lectures delivered before the American Museum of Natural History in New York during February and March of 1911, on the Morris K. Jesup lectureship. The lectures are of a popular nature and their object is to place before the layman the enormous growth of medical knowledge in the last half century, during which medicine has emerged from its long period of speculation and empiricism to take its present place among the exact sciences. Beginning with a lecture on the normal human body the series deals with the nature of disease, diagnosis and methods of treatment. As the title implies the stress is laid upon scientific achievement rather than upon practical application; for though public hygiene and the obligation of the intelligent co-operation which rests on the individual are touched upon, they are not "rubbed in" with the vigor usually found in medical writings for the lay reader. A certain amount of scientific knowledge is presupposed; all the terms are not explained nor are the experiments and results always described in words of one syllable. Nevertheless, this attempt to combat the ancient prejudice against doctors which still exists in the minds of many intelligent persons, by pointing out the exact, scientific nature of modern medical knowledge and practice, should be highly successful. It is not possible to read these eight enlightening lectures, written in a literary style of unusual excellence, without a new sense of the labor and achievement of those who devote their lives to medical science.

The quality of the paper, the clear and legible type and the absence of proofreader's errors add materially to the pleasure and comfort of the reader.

E. B. P.

The Practical Medicine Series. Volume IX, Series 1911. Skin and Venereal Diseases. Miscellaneous Topics. By W. L. Baum and Harold N. Moyer. 239 pages, 11 plates, cloth, \$1.25. The Year Book Publishers, Chicago.

The volume contains a timely discussion on the etiology and symptomatology of pellagra, with reports of several cases. It also takes up rather thoroughly the symptomatology of the various forms of leprosy. The subject of fungus infection of the finger nails is considered fully. In nearly all these cases ringworm fungus has been found. Treatment of this condition is discussed and there are many clinical illustrations. The use of scarlet red in ulcers is recommended, although the good results that are claimed for it have not been universally seen by all observers. This volume would not be complete without a discussion of the Wassermann test and "606." A most interesting fact in regard to the Wassermann test brought out is that alcohol apparently renders the test negative. This may account for some negative Wassermann reactions in cases that are clinically lues. There is also an interesting abstract on liver syphilis with the results of blood examinations. In the discussion of salvarsan, the dangers of this form of treatment are not sufficiently brought out. In the apparent simplicity of its administration one is apt to forget its dangers. It is of interest to note that from the first of January to the twenty-second of October, 1911, there were 141 deaths in France from injections of "606"—death taking place anywhere from one hour to two months following treatment.

The author makes a plea for the use of electricity in genitourinary diseases, and claims that this form of treatment has been sadly neglected.

Under the miscellaneous subjects there is given a brief history of ancient medical preparations and their application. Many curious old customs and superstitions in the treatment of wounds are mentioned. The subject of state insurance is briefly discussed, as are also several medico-legal questions.

W. C. G.

The Practical Medicine Series. Volume X, Series 1911. Nervous and Mental Diseases. Edited by Hugh T. Patrick, M. D. and Peter Bassoe, M. D. 245 pages, cloth, \$1.25. The Year Book Publishers, Chicago.

This review of the past year's neurological and psychiatric literature furnishes interesting reading for one who may desire to be in touch with the more recent suggestions as to etiology, diagnosis and treatment of nervous and mental diseases. The selection of subjects to be treated seems a wise one, and the abstracts of the articles dealing with these subjects are clear cut and easily readable. The book is well illustrated by a number of helpful diagrams and photographic reproductions which add materially to its interest and value. This volume should but further increase the popularity of the Year Book Series.

C. W. S.

Acknowledgments.

The Practical Medicine Series. Volume IX. Skin and Venereal Diseases, Miscellaneous Topics. By W. L. Baum, M. D. and Harold N. Moyer, M. D. Volume X. Nervous and Mental Diseases. By Hugh T. Patrick, M. D., and Peter Bassoe, M. D. Series 1911. The Year Book Publishers, Chicago.

Fourth Report of the Wellcome Tropical Research Laboratories at

the Gordon Memorial College, Khartoum. Andrew Balfour, M. D., Director.

Department of Commerce and Labor. Bureau of the Census, E. Dana Durand, Director. Bulletin 109. Mortality Statistics: 1910.

The Way With the Nerves. By Joseph Collins, Physician to the Neurological Institute of New York. G. P. Putnam's Sons, New York and London.

Practical Electro-Therapeutic and X-Ray Therapy. By J. M. Martin, M. D., Professor of Electro-Therapeutics and X-Ray Methods in the Medical Department of Baylor University, etc. Containing 219 illustrations. Price \$4.00. C. V. Mosby Co., St. Louis. 1912.

Public Health and Marine-Hospital Service of the United States: Public Health Bulletin No. 47.

Reprints by:

Charles Bolduan, M. D., and W. Carey Noble, New York.

W. J. Conklin, Dayton, Ohio.

E. H. Martin, Hot Springs, Ark.

Otto Lerch, New Orleans, La.

W. Denis, Tulane Medical School.

Ralph Hopkins, Tulane Medical School.

Philip Frank, New Orleans, La.

Correspondence.

FAME AND POPULARITY.

Editor *Cleveland Medical Journal*:

You may perhaps think my letters to *The Journal* take a rather wide range of subjects. Yet the physician's interests are broad and varied, and I am sure your readers will find in the quotation which I wish to present from a distinguished author of the last century, deep insight, fine perception, and truth *applicable to our own times, and to physicians* as fully as to other men. William Hazlitt is perhaps the greatest of English critics. Thackeray regarded him as "one of the keenest and brightest critics that ever lived," and attributes to him "a wit so keen, a sensibility so exquisite, an appreciation of humor or pathos, or even of the greatest art, so lively, quick and cultivated that it was always good to know what were the impressions made by books or men or pictures on such a mind." A perusal of his work will soon convince the reader how well he knew men, their minds and their motives, but I only give here one quotation. The italics alone are mine.

"Genius is the heir to fame; but the hard condition on which the reversion must be earned is the loss of life. Fame is the recompense, not of the living, but of the dead. The temple of fame stands upon the grave; the flame that burns upon its altars

is kindled from the ashes of great men. Fame itself is immortal, but it is not begot till the breath of genius is extinguished. For *fame is not popularity*, the shout of the multitude, the idle buzz of fashion, the venal puff, the soothing flattery of favor or of friendship, but *it is the spirit of a man surviving himself in the minds and thoughts of other men, undying and imperishable*. It is the power which the intellect exercises over the intellect, and the lasting homage which is paid to it as such, independently of time and circumstances, purified from partiality and evil-speaking. Fame is the sound which the stream of high thoughts, carried down to future ages, makes as it flows—deep, distant, murmuring evermore like the waters of the mighty ocean. He who has ears truly touched to this music, is in a manner deaf to the voice of popularity. The love of fame differs from mere vanity in this, that the one is immediate and personal, the other ideal and abstracted. *It is not the direct and gross homage paid to himself that the lover of true fame seeks or is proud of, but the indirect and pure homage paid to the eternal forms of truth and beauty as they are reflected in his mind, that gives him confidence and hope*. A man of genius cannot well be a coxcomb; for his mind is too full of other things to be much occupied with his own person. He who is conscious of great powers in himself has also a high standard of excellence with which to compare his efforts; he appeals also to a test and judge of merit, which is the highest, but which is too remote, grave, and impartial, to flatter his self-love extravagantly, or puff him up with intolerable and vain conceit. This, indeed, is one *test of genius and of real greatness of mind*, whether a man can wait patiently and calmly for the award of posterity, satisfied with the unwearied exercise of his faculties, retired within the sanctuary of his own thoughts, or whether he is eager to forestall his own immortality and *mortgage it for a newspaper puff*.

"He who thinks much of himself will be in danger of being forgotten by the rest of the world; he who is always trying to lay violent hands on reputation will not secure the best and most lasting."

SAMUEL W. KELLEY.

MEDICAL NEWS.

The National Confederation of State Medical Examining and Licensing Boards will hold its twenty-second annual convention at the Congress Hotel, Chicago, February 29. The following program will be

presented: 1, What a National Federation of State Boards Can Do, Albert B. Brown, State Board of Louisiana; 2, What Should Be the Requirements for Membership in a National Federation of State Boards, John Milton Dodson, Rush Medical College; 3, Best Methods of Conducting State Licensing Examination, George H. Matson, State Board of Ohio; 4, Medical School Equipment and State License Examination, Frank Fairchild Wesbrook, University of Minnesota. The officers of the Confederation are: President, Charles A. Tuttle, New Haven, Conn.; Vice-Presidents, James A. Egan, Springfield, Ill., and A. B. Brown, New Orleans, La.; Secretary-Treasurer, George H. Matson, Columbus, Ohio.

At the Thirty-Second Conference of the Ohio State Board of Health with representatives of local Boards of Health, held in Columbus on January 18 and 19, the following program was presented: 1, Chairman's Address, Frank Warner, Columbus; 2, Plumbism in the Industries of the Middle West, Alice Hamilton, Chicago, Ill.; 3, Dust as a Cause of Pulmonary Diseases, Frank Winders, Columbus; 4, Stream Pollution in Ohio, John W. Hill, Cincinnati; 5, The Open Air School, August F. Foerste, Dayton; 6, Hygienic Factory Construction, William Earl Russ, Dayton; 7, Efficient Dairy Inspection for City Milk Supplies, C. W. Eddy, Cleveland; 8, The Venereal Peril, E. A. Deeds, Dayton; 9, Better Housing for our Industrial Classes, Oscar Hasencamp, Toledo; 10, Epidemic Poliomyelitis, Frank G. Boudreau, Columbus; 11, Rabies and its Prevention, J. McL. Phillips, Columbus; 12, Chemical Treatment of Public Water Supplies, W. H. Dittoe, Columbus.

Academy of Medicine of Toledo and Lucas County: The Section on Medicine met on Friday, December 15. E. J. Greenfield presented a paper on Dilatation of the Stomach Without Ptois. At the meeting of this Section held on Friday, January 19, C. G. Souder demonstrated specimens of aortic aneurysm, tumor of the liver and syphilis of the brain and presented a paper upon Typhoid Vaccine as a Prophylactic. J. F. Fox discussed Gynecological Diagnosis from a Medical Standpoint.

The Section on Surgery met on Friday, December 22. The program was as follows: Heath's Conservative Operation for Mastoiditis, F. A. Leslie; Discussion opened by W. H. Snyder.

At the meeting of the Section on Eye, Ear, Nose and Throat on Friday, December 29, the following program was presented: General Consideration of Uveitis, Chas. Lukens; Irido-Cyclitis, Bert Leatherman; Choroiditis, E. J. Wilkinson.

The Section on Pathology met on Friday, January 12. The program was as follows: Lantern Slide Demonstration on Certain System Diseases of the Spinal Cord, Louis Miller; Typhoid Prophylactic Vaccination, C. G. Souder.

At the general meeting held on Friday, January 5, the following officers were elected: President, Charles W. Moots; Vice-President, James W. Watson; Secretary, C. D. Selby.

The Muskingum County Medical Society met on Wednesday, January 10, at the Bethesda Hospital as the guests of the Board of Trustees and the Matron of the hospital. The program was as follows: Antipyretic Drugs, R. B. Bainter, Zanesville; Hydrotherapy as an Antipyretic, C. H. Higgins, Zanesville.

The Stark County Medical Society held its annual meeting at Canton, Tuesday, January 16. The officers elected were: President, D. S. Gardner, Massillon; Secretary-Treasurer, C. A. LaMont, Canton; Corresponding Secretary, G. C. Goudy, Canton; Members of the Executive Committee, Perry King, Alliance, and A. J. Hill, Canton. The program was as follows: Prevailing Diseases, E. O. Morrow, Canton; Review of the Year's Surgical Work, L. B. Zintsmaster, Massillon; Feeding the Baby, L. B. Santee, Marlboro; Etiology of the Diseases of Women, H. E. Corl, Middlebranch; Hygiene and Sanitation, G. F. Zinniger, Canton;

Ethics and Legislation, G. L. King, Alliance. It was planned to make the February meeting an open one for the discussion of tuberculosis.

The St. Alexis Hospital Alumni Association held its eleventh annual banquet at the Hollenden hotel Saturday, January 20. The following officers were elected: President, Myron Metzenbaum; Vice-President, J. S. Tierney; Secretary, Frank P. Corrigan; Treasurer, J. W. Russell.

The Charity Hospital Medical Society met Wednesday, January 17, for the following program: 1, Treatment of Septic Abortion, E. O. Houck; 2, Case Report, J. S. Tierney; 3, Presentation of Clinical Cases. The officers elected for 1912 were: President, A. A. Jenkins; Vice-President, H. A. Berkes; Secretary, A. G. Schlick.

The Lakeside Hospital Medical Society: At the fifty-seventh meeting, held Thursday, January 31, the program was as follows: 1, Phenol-sulphonophthalein as a Test of Kidney Function, H. L. Sanford; 2, Discussion of Cyanosis and Respiration in a Case of Mediastinal Tumor, C. F. Hoover; 3, Presentation of a Case of Probable Tuberculous Meningitis with Recovery, C. B. Craig; 4, Presentation of a Case of Osteomalacia, T. P. Shupe; 5, Demonstration of Pathological Specimens, H. O. Ruh.

The Lakeside Hospital Alumni Association, at its annual meeting and banquet held at the Lakeside Hospital, February 10, was addressed by Hugh Cabot of Boston upon "Recent Advances in Diagnostic Methods in the Urinary Tract." The following officers were elected: President, C. L. Cummer; Vice President, G. H. Lewis; Secretary-Treasurer, H. L. Taylor; Trustees, H. L. Sanford and H. O. Sloan.

R. G. Perkins has been appointed by the Governor a member of the State Committee to cooperate with the Committee on Organization in planning and preparing the exhibition of the Fifteenth International Congress on Hygiene and Demography, to be held in Washington, D. C., September 23 to 28, 1912.

J. M. Frick of Toledo is in Germany devoting special attention to proctology.

J. R. Sook, formerly of Newark, Ohio, is now located in Toledo, Ohio.

Dan B. Spitler, formerly of Waterville, Ohio, has moved to Hoytsville, Ohio.

C. D. Selby of Toledo has been appointed Treasurer of the Ohio State Medical Association by the President to fill the unexpired term of James A. Duncan, resigned.

Samuel W. Kelley, Cleveland, has been elected Honorary Professor of the Surgical Diseases of Children in the American Medical College, the Medical Department of Barnes University, of St. Louis. It is understood that Dr. Kelley will not remove to St. Louis.

The Clinical Congress of Surgeons of North America has decided upon New York City as its next meeting place.

Deaths.

William Henry Wirt died at Loudonville, Ohio, December 27, 1911, aged 70 years.

G. W. Jones died at Quaker City, Ohio, December 27, 1911, aged 61 years.

Hubert Huber died at Ottawa, Ohio, December 1, 1911, aged 83 years.

James B. Bertollette died at Leetonia, Ohio, aged 72 years.

E. L. St. John died at Cleveland, Ohio, January 21, 1912, aged 77 years.

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A Systematization of Certain Morbid Processes as Regards Their Relation to the Nervous System on the Anatomical Basis of Its Function Activity.

By DAVID H. DOLLEY, M. D., Columbia, Missouri.

(From the Pathological Laboratory of the University of Missouri).

From time to time during the last four years the writer has published communications on the anatomical changes resulting from functional activity in nerve cells in normal and abnormal conditions. However, as it was primarily necessary to establish as far as possible the normal physiological nature of the changes, their relation to abnormal conditions has been a secondary consideration. The purpose of this paper is to point out that certain widely variant abnormal conditions rest on a common anatomical basis of normal activity so far as concerns their relation to the nervous system. Hence, their effects, the signs and symptoms which may be directly referred to the brain, are to be interpreted in terms of activity and the natural results of activity, namely, fatigue and exhaustion. The conception is not that these morbid conditions are pathological in the ordinary sense that they are different from the normal but that they represent normal processes carried to an abnormal, excessive degree. Many of these processes have been already thus classified on the basis of clinical observation and physiological experiment. For these the anatomical evidence affords the final link in the completed chain. The aim will be to consider the question very generally, avoiding any technical reference to data or to the cellular doctrines which formed the working basis of approach.* However, some discussion concerning the na-

*A full bibliography is given in the *Journal of Medical Research*, XXV, 1911, 285.

ture of the activity of the nerve cell is necessary to indicate why this far-reaching systematization is logical.

The relation between the two essential elements of the nervous system, the nerve cell and its processes, has undoubtedly come to be held to a greater or less degree in improper balance. The fiber, not the cell, has received the major part of investigation. More than this, investigation of the cell itself has been directed almost exclusively to the fibrillary element contained within it. So it has come about that to this element is actually ascribed a more or less weighty role in the origination of functional processes of the cell.

But it is the cell that originates the energy, that transforms it—in other words the fiber is essentially only a part of the cell specialized to transmit the energy which is generated in the cell in response to a stimulus. Any other view is inconceivable, for it would necessarily ascribe to an element which is merely a subsidiary part of the cell powers and faculties belonging strictly to the whole cell and its nucleus. The neuron concept is only another term for the cellular concept. The incompetence, the impossibility of any interpretation of the biological principles underlying the activities of the nerve cell thus based on a part of the whole is obvious. It leads nowhere, and as a matter of fact, for the time has come for plain speaking, that is just where it alone has lead. The investigation of the fiber changes in a functional nervous disease is like investigating the cold pipes in a steam heating plant for the cause when the fire in the furnace is dead or dying. The primal working of cause and effect may be there, as in the nerve fiber, but ordinarily it is the source of energy which is at fault. By no means, however, is any attempt to discredit this phase of investigation implied, its importance and necessity are fully recognized.

So it is that the fibrillary portion of the cell has no part in this discussion, for no function has been proven for it as yet save as an intermediary between the nerve cell and its environment. There is a further point to be emphasized regarding the nerve cell itself. There can be no doubt that it has been regarded, and naturally, on account of its being the acme of specialization, as a cell apart, a law to itself. Yet, as Richard Goldschmidt remarks in discussion of this same point, conformity to law must apply to it as to all other cells.

It is most highly specialized, but nevertheless the faculties for which it is specialized, namely, irritability and conduction are possessed by simple undifferentiated protoplasm. It is a cell as other cells and conforms in every respect to the laws governing cells. Principles whose conception was obtained from the study of the simplest types of cells apply equally to the nerve cell.

One hates extremely to be in the attitude of presenting a brief for the cellular doctrine in this day and generation but not only superficial but indeed pernicious conclusions have followed what can only have been its neglect. I refer to the idea of the inexhaustibility of the nerve cell, to which some investigators whose work has to deal with the collective action of cells and not with cells as units are committed. The results of the pioneer Hodge, whose clear conception of the inevitable results of the nerve cell's activity may be summed up in his axiom "Old age is of the nature of final fatigue," and the essentially corroborative results of his successors have been disregarded and over-ridden, and the changes, for the changes could not be denied, laid at the door of toxic waste products. Only here and there an observer as Verworn has taught the difference between the depression due to waste products and that resulting from the consumption within the cell of substances necessary to life.

Because this is fundamental as well as because it is on the grounds of a toxic action that destructive criticism of the significance of the anatomical changes belonging to functional activity is expected, the action of the products of muscular fatigue on the nerve cell has been put to the actual test of a series of experiments, now nearly completed. These experiments embrace both the transfusion of blood from physically exhausted dogs into normal animals and the intravenous injection of sarcolactic acid and monopotassium phosphate, which are accepted as the chief products of muscular fatigue, into other normal animals. Briefly, for the present purpose, there is absolutely no evidence that these toxic substances in ample dosage have any causative relation to the changes peculiar to normal activity. This was only to be expected as these toxic substances are produced by activity and are not the cause of it.

However, it is not denied at all that such waste products

may result in actual anatomical changes. But if such changes are produced, they will be those corresponding to true physiological depression, the inhibition of activity, as distinguished from the exhaustive depression of over-activity. This depression is the antithesis of activity, a totally different thing anatomically as well as functionally, and analagous to the state which Richard Hertwig has determined for the protozoa. While in the experiments so far performed, there has been only the barest suggestion of this, yet there is other evidence from which it seems safe to predict that such waste products in excessive amounts and acting for a long time can bring about anatomical changes. This is far from complicating the analysis of structure in relation to function, for these two possibilities, depression and activity, are not only distinct but exhaust the functional possibilities of the nerve cell. Either the cell works or is inhibited from working and into one or the other of these categories all things relating to function or to the failure of function must fall. If this discussion seems impractical, what adequate explanation is there on the basis of an inexhaustible nerve cell of the all too common phenomena of a nervous breakdown in an individual whose excretory organs are working efficiently?

The anatomical changes under discussion are held to represent functional activity. They mean the work of the cell, the mechanism by which it performs its specialized function. They are not the result of abnormal conditions in its immediate environment affecting the cell directly save through the normal process of stimulation. They do not come as the result of special experimental conditions, fitting this but failing to occur in that. So far as normal life is concerned, the test sought is in their universal application. They represent all phases of activity from muscular to mental. In its work the cell goes through a certain sequence of changes, passing through gradations which correspond to progressive fatigue and finally reaching a point which is the visible equivalent of outward exhaustion. This is true of all nerve cells, whatever their rank or place, provided the stimulation be adequate. The mechanism by which they elaborate their energy supplying material is fundamentally the same throughout the animal scale, whatever the stimulus. With that established the possibilities of the cell, as regards the purpose for which

it exists, are exhausted up to the point where this potential energy is transmuted into the energy of work, the nerve impulse. This is going rather far, but when one considers that the curve of activity of the abdominal ganglion cells of the common crayfish, both sensory and motor, is actually identical with the curve of the Purkinje cell of man, as has been demonstrated in some work as yet unpublished, it would seem that the extremes are far enough apart to prove the universal unity, with all the intermediate findings pointing the same way. It takes weeks for the primitive cell to arrive at an immediate exhaustion that for the other is a matter of hours if continuously stimulated but the mechanism is fundamentally the same.

The essential ideas regarding the working of nerve cells are that chromatin, formed by the interaction between the cell body and its nucleus, is discharged from the nucleus into the cell body where it is stored (the Nissl substance). Under stimulation, it is the combustion of this chromatin in the cell body which furnishes the energy of work. As it is used up, the supply is continuously renewed, resulting in highly differentiated cells in definite stages of chromatin formation and consumption, in all cells in uniform and constant size changes which latter have been correlated throughout with the formation of chromatin. Under this conception are embraced all the changes which have ever been described for the nerve cell's activity, the chromatolysis, certain irregularities of form, the increase in size of cell and nucleus—which is nothing but a functional hypertrophy—and the edema of the cell. Further, if the share of all the cell elements be properly considered, these are the only changes possible in activity. All of these are to be correlated under a single purpose—to hold the chromatin which is being continuously used up at a working level of efficiency. It is this chromatin which the whole cell works to elaborate that furnishes the energy whose display we know as function. This being so, it is obvious that the state of the chromatin is an index of the functional capacity of the individual. The different stages through which the cell passes can be interpreted in terms of his activity, fatigue or exhaustion by the preponderance of one or another. More than this, the finding of identical changes in any condition, so definite in character and so limited in purpose, means

functional activity and only that. It is upon this basis that the abnormal processes here to be considered are correlated. Their only changes are those of functional activity. Therefore functional activity is the fundamental principle involved in the effects and symptoms which they produce. The whole idea is so exceedingly simple when it is separated from the technical side which gives it a foundation. All nerve cells from the highest to the lowest work alike; they not only work but become fatigued and exhausted; not only normal but abnormal stimuli bring about the same results.

The various types to be considered may be most logically grouped under the forms of stimulation which characterize them.

Trophic Stimulation.

This is represented by anemia. This condition and traumatic shock are the abnormal ones which have received the bulk of the detailed study. Anemia was induced in the dog by three methods, by simple bleeding and by ligature of the four cerebral vessels, resulting in partial anemia, and by resuscitation after relative death, which afforded opportunity for the study of the brain absolutely deprived of blood for from five to fifteen minutes. That blood-letting of any degree works naturally in exciting nerve cells to greater activity a moment's thought will justify. The cells as a result receive myriads of unusual stimuli from all parts of the body as well as other parts of the brain, while at the same time on account of the impoverishment of its immediate source of energy, they must draw deeply upon their reserve forces. How beautifully these anatomical findings of over-activity and fatigue harmonize with the results of physiological experiments may be illustrated by the compensating attempt of the vasomotor center. After the rapid removal of a large volume of blood, the blood-pressure falls to a very low level but invariably rises again shortly of itself, often as much as one-half of the original level. The center is now highly active, constricting peripheral vessels. But this high level only persists a few minutes and with the onset of fatigue the blood-pressure falls to a lower point than before.

Thermal Stimulation.

That heat exhaustion is likewise anatomically an exhaustion has been proved by experimental material from cats

and rabbits during this year by F. A. Martin, working in this laboratory.

Mechanical Stimulation.

Traumatic surgical shock falls under this heading. A multitude of abnormal stimuli, generated at the local seat of injury, are conducted along the usual pathways and stimulate the nerve cells in the direction of their natural activities. This is the natural connection between injury and brain. There is a stimulus, there must be an effect. Throughout the nervous system it is to be found, and found in a comparatively more pronounced fashion than in any experimental condition yet studied, as the cell changes of normal functional activity. Surgical shock is essentially a manifestation of the varied cell states of activity, over-activity, fatigue and exhaustion. The symptomatic expressions are to be referred to the degree of reaction and to its manner of localization, and the working out of the nervous inter-relationship will be the working out of the normal inter-relationship of normal life.

Chemical Stimulation.

Bacterial Toxins.—In certain broad types of the ordinary infectious diseases examination has proved that the sole changes in the nerve cells are those of functional activity. It has not been possible to differentiate any other alterations and consequently the cellular picture differs from the normal only quantitatively. That is, there are more cells approaching exhaustion. On this basis, the ground is taken that the toxins of these diseases stimulate the nerve cells in a physiological manner to a discharge of energy. It is not necessary to this conception of the discharge of energy that outward work be done or visible symptoms result, though in part it becomes thus apparent. There is anatomical evidence that nerve cells can exhaust themselves without producing their customary functional effect, as, for example, a motor group without moving its dependent muscle. Considering the fact that in numerous previous investigations of the state of nerve cells in toxic processes the essential changes described are those of normal activity, namely a chromatolysis associated with definite size changes, it seems reasonable that the specific list of bacterial toxins working thus physiologically will be large and embrace many not here typified.

The problem, however, is complicated by numerous factors, and it will doubtless take years of experimental analysis to dif-

ferentiate them. But, practically, this is of little importance in the management and treatment of cases as compared with the fundamental truth for which the examples seem adequate that the effect of the toxins is the result of a process and a physiological process rather than the result of an injurious direct chemical combination with the tissue which merely disturbs its normal function.

The following bacteria have thus far been correlated by the writer as exerting a stimulating action: the pyogenic cocci, the pneumococcus, *B. paratyphosus*, *B. pyocyaneus*, *B. diphtheriae* and *B. tetani*. The material for microscopic study was obtained from various spontaneous cases of general bacteriemia and toxemia in man and from experimental inoculations of the dog and rabbit, and included samples from all parts of the nervous system. In the case of *B. diphtheriae* alone, the toxin itself was injected instead of the bacilli in both the dog and rabbit, at intervals and in sublethal dosage in order to cause death relatively slowly.

Considered briefly, the most important factors in the infectious diseases whose several effects will have to be weighed and determined are:

1. The toxemia itself, either acting it may be by exerting a direct stimulating effect on the cell or by affecting it through the natural paths of end organs and nerves or both of these, or it may be in some instances acting by making the cell more susceptible to stimulation as seems to be proven as the effect of strychnin.

2. The effect of the stimuli from disturbed function and structure. The existence of these is self-evident even when they do not on occasion come into consciousness as a pain or other abnormal reflex.

3. The increase of temperature. Internal heat must produce the same effect as external heat, which latter has been proven.

4. The outward activities which characterize certain infections, such as increased respiratory efforts, coughing, convulsions and delirium, will react on the brain to produce more widespread and decided fatigue effects. These are the most obvious of all, as these signs and symptoms are the outward expression of the work of the cell.

5. For the sake of completeness, starvation, resulting in a trophic over-work must be mentioned as playing a rôle in some cases.

Whether the toxin alone, independent of these other secondary and complicating factors, is at all an efficient stimulus, it is of first importance to determine. Factors three and four above, the fever and the outward activities, are secondary effects for which certainly in some diseases nothing can be responsible save the primary action of the toxin, as the fever in diphtheria, the convulsions in tetanus, and in such examples as these the second factor of abnormal bodily stimuli is initially not appreciable. Anatomically, there is activity induced by some cause. It would appear then that the initial cause of this activity may be found in the toxin alone, whether it stimulates the cell directly or renders it more susceptible to stimulation. Strychnin is certainly none the less a stimulant because it acts the latter way. However, that is an academic question and practically it is not of such interest how the toxin stimulates as the fact that it very generally does.

If bacterial toxins work in this way, other cells than nerve cells would be expected to exhibit the same effect. In the cloudy swelling of muscle and epithelial cells, so generally associated with the acute infections, Adami is of the opinion that the indications are those of stimulation. Looking at it from the point of view of the nerve cell, there is such a striking similarity in the sequence of the anatomical changes in the other cells that it could not but suggest this.

Unfortunately for the relative simplicity which this idea of the stimulating action of toxins possesses one cannot stop here. But as toxins vary widely chemically, they cannot be expected to exert a single physiological action. There is evidence, too striking to be disregarded, that certain infectious processes are associated with a state of cellular depression such as has already been discussed. The only condition in which this has been found so far is hydrophobia. In several dogs, naturally infected and either dead of the disease or killed in the paralytic stage, examination has shown a total lack of the changes peculiar to activity and instead a definite disorganization of the cells which at present it seems only possible to interpret anatomically as depression. Again, however, though this type represents an exception to the cell

states which are the theme of this paper, it is to be remembered that such exceptions were only to be expected in the light of general cytological work and further that this depression exhausts the possibilities. It would appear also that it is of much less common occurrence.

The Natural and Spontaneous Stimulation of Everyday Life.

When the nervous activities are carried beyond the degree normal to the individual, there results some phase of that symptom-complex we know as neurasthenia. The distinction between organic and functional disorders must pass. That the cells which subserve all our mental activities elaborate and use their energy in the same way as lower types the work has progressed sufficiently far as to leave no reasonable doubt. Anatomically then, neurasthenia is just what the original conception as given by the name itself implies—nervous exhaustion. To make only one comment upon this anatomical point of view, it will confer a dignity upon such disorders such as at present in some degree they are not held to merit unless the writer has misconstrued the more common attitude. In a nervous equipment below par and hence unequal to even the ordinary stimuli of life, there may be found the apology, speaking reservedly, even for some hypochondriacs. The ever-ready response of the nerve cell, so long as it has aught to give, its reserve powers on continued demand and its later more wonderful recuperation, all of which the microscope reveals,—these are the attributes and the more common heritage which enable the most of us to stand the strain. But each individual has his anatomical limits, however highly he be endowed, and the final result of cellular activity is inevitable, either as a natural old age after a normal life or as a breakdown and a premature old age after burning the candle at both ends in work or play.

The results of the studies on recuperation offer explanation of the after-effects and chronic phases of all the conditions mentioned. With all its recuperative power, there comes a time to every cell when recuperation fails. The substance of the cell dwindles, one by one its elements suffer distortion of form and disappear. The presence of these types and the actual loss of cells are the distinguishing features of natural old age. When now one considers that such changes may be produced in recognizable degree by a single com-

pletely exhausting act of bodily activity, it is obvious how a severe infection, a severe shock, may bring about permanent effects, whose essential nature is that of senility, prematurely produced, and the reason is afforded for the permanent handicap which often results.

In this connection, the work of D. W. B. Kurtz, Jr., who has been studying in this laboratory the recuperation after slowly induced traumatic shock may be mentioned. Recovery, as was to be expected, follows the same course after this mechanical stimulation as after natural stimulation, and just as in that, after an exhausting strain is exceedingly slow. Some traumatic neuroses at least will cease to be neuroses in the more common sense of the word and find their explanation in an anatomical derangement from hyperstimulation, from which there results a disturbance of the physiological balance.

Finally, there remains a disease of yet another type which is characterized as regards the brain by an anatomical basis in common with the preceding types but in which the stimulating factor is as yet not definitely known. J. B. Austin, working in association with G. W. Crile, has shown, along with other important and corroborative findings in infectious diseases, that the nerve cell changes in exophthalmic goitre are those of functional activity. Anatomical confirmation is thereby given to the idea that as regards the brain the final result of this affection is a true exhaustion, and explanation of the symptomatic nervous over-activity is suggested. Whether the primal stimulant to the brain be chemical or trophic or psychical is as yet unknown. The apparent preponderance of one factor may be only superficial because another more fundamental has rendered the mechanism exceedingly susceptible to its influence. One thing is sure—any chemical or trophic stimulus is just as possible as a psychical as the primary excitant of the brain so far as their action goes and we cannot settle on one until the others are excluded. But with the anatomical effect on a firm foundation, the present point is that the path of investigation is made clear.

It seems safe to make some general deductions of more particular interest to the practitioner as regards the treatment of these conditions. The nature of the anatomical findings

emphasizes the necessity of caution at least in the use of stimulants. They can only further stimulate cells already highly stimulated, possibly almost driven to exhaustion, and it is easily understandable how, after a temporary and superficial benefit, the resulting state may be actually worse than the first, indeed, dangerously so. Nevertheless, in the present state of our knowledge, it is caution in their use, not absolute contraindication, that seems demanded. For, of course, it has to be borne in mind that because the so-called vital centers are more primitive and hence less easily exhaustible, a stimulant may tide over a crisis due to the more particular involvement of such a center. But from the cellular side and from considerable experience in physiological experimentation along this line, I am strongly of the opinion that the use of stimulants outside of some such definite indication as this is more fraught with harm than good. The main point is that their use just on the general basis of prostration and weakness is to be condemned.

Such stimulating drugs as are ordinarily used consume energy, they do not furnish it. Referring especially to shock, to anemia and to nervous prostration, what is needed is a food,—ordinary suitable food until or unless we can find something specific for the nerve cell's energy renewal. Rest and food and then more rest are the essentials. Weir Mitchell's treatment was solidly conceived. Does a person who is "run down," as we say, recover as a result of the stomachic plus strychnin—save in so far as it artificially stimulates appetite—or on account of the enforced rest that his enfeeblement necessitates? There is still too much of drugging and too little of practical physiology. And as no one questions the nervous control of the body, it is hoped that the anatomical proof of its functional disabilities will emphasize more concretely its rôle in originating many neurasthenic and allied disorders which will disappear when the brain is restored to its normal condition and not until then. Such disorders are physiologically produced—they can only be physiologically restored.

Finally, in the morbid processes here considered is to be found a striking illustration of the truth, which is ever becoming more widespread in its application, that the manifestations of disease are only relatively abnormal in their physi-

ological aspect. The laws controlling their results, evil though the latter are, are the laws of normal life. Between the normal and the abnormal there is no line of demarcation. The normal passes insensibly into the abnormal, however apparent the latter may be as the climax is approached. Of all the forms of stimulation here discussed in their excessive exhibition, only one, the chemical stimulation of the bacterial toxins, can be absolutely eliminated as a factor outside of normal life, and in place of that there is the chemical stimulant with which we almost universally start the day. We are aware of that but we are not so aware how surely each has its share, infinitesimal, small or large, in the inevitable effect. On the other hand, there is anatomical indication that the tissue which receives the brunt of it varies in its quality just as much as one individual varies outwardly from another. In a more active capacity as the curator and educator in health, which he has only to assert himself to attain, the physician may find equally as high a scope for his art and science, his judgment and insight as in the capacity of an assistant in the recovery from disease.

Summary.

In numerous abnormal conditions there is a common anatomical basis of those identical nerve cell changes which are peculiar to normal functional activity. The common exciting cause affecting the nervous system which is thus predicated is to be found in the physiological factor of stimulation. From this, work and finally over-work result. The types which are thus classified under their form of stimulation, for undoubtedly still other conditions remain to be thus grouped, are: from trophic stimulation, anemia; from thermal stimulation, heat exhaustion; from mechanical stimulation, traumatic shock and at least some traumatic neuroses; from chemical stimulation of the bacterial toxins, a group of infectious diseases, again broadly typified; from an undetermined stimulation, either trophic, chemical or psychical, exophthalmic goitre; and from an excessive spontaneous stimulation of everyday life, which in its normal display leads finally and inevitably to natural senescence, neurasthenia and allied disorders.

The Treatment of Septic Abortion.

By E. O. HOUCK, M. D., Visiting Obstetrician, St. Ann's Hospital;
Visiting Gynecologist, City Hospital; Assistant Visiting
Surgeon, St. John's Hospital, Cleveland, Ohio.

It is estimated that one out of every eight or ten pregnancies terminates in abortion, accidental or otherwise. The importance, then, of the proper management of abortion is apparent. Further, the majority of patients ill because of an abortion are usually treated at their homes and for this reason the proper management of these patients is of as great importance to the general practitioner as the management of appendicitis.

About 25 per cent of abortions become infected and of these about 10 per cent die. It will be noted from the latter figures that they again do not vary much from the mortality of appendicitis. Varying degrees of morbidity are also frequently associated with and result from an abortion, for many women date their ill health from a miscarriage, even though perhaps a pelvic lesion may have antedated the abortion and been a considerable factor in causing the abortion. Pelvic pathology is often greatly aggravated by an abortion.

The treatment of abortion depends largely, of course, on whether the uterus has emptied itself or not. Some abortions, as is well known, terminate spontaneously with complete expulsion of the ovum and the entire decidua. The earlier in the first half of a pregnancy an abortion occurs the more likely is this to be the case. Such patients need no special treatment except perhaps rest in bed and ordinary hygienic care. More than half the cases, however, do not terminate so favorably and are associated with either hemorrhage or infection. These latter cases are also more likely to be incomplete abortions.

Of late the correctness of the usual mode of procedure in the treatment of inevitable abortions has been called into question, particularly in so far as these procedures are responsible for postabortal infections. I refer especially to the employment of vaginal or cervical packs, whether the same be a gauze or cotton tampon, or whether it is a laminaria tent. There is no doubt as to the efficacy of these measures in promoting evacuation of the uterus and checking hemorrhage.

Read before the Charity Hospital Medical Society, January 17, 1912.

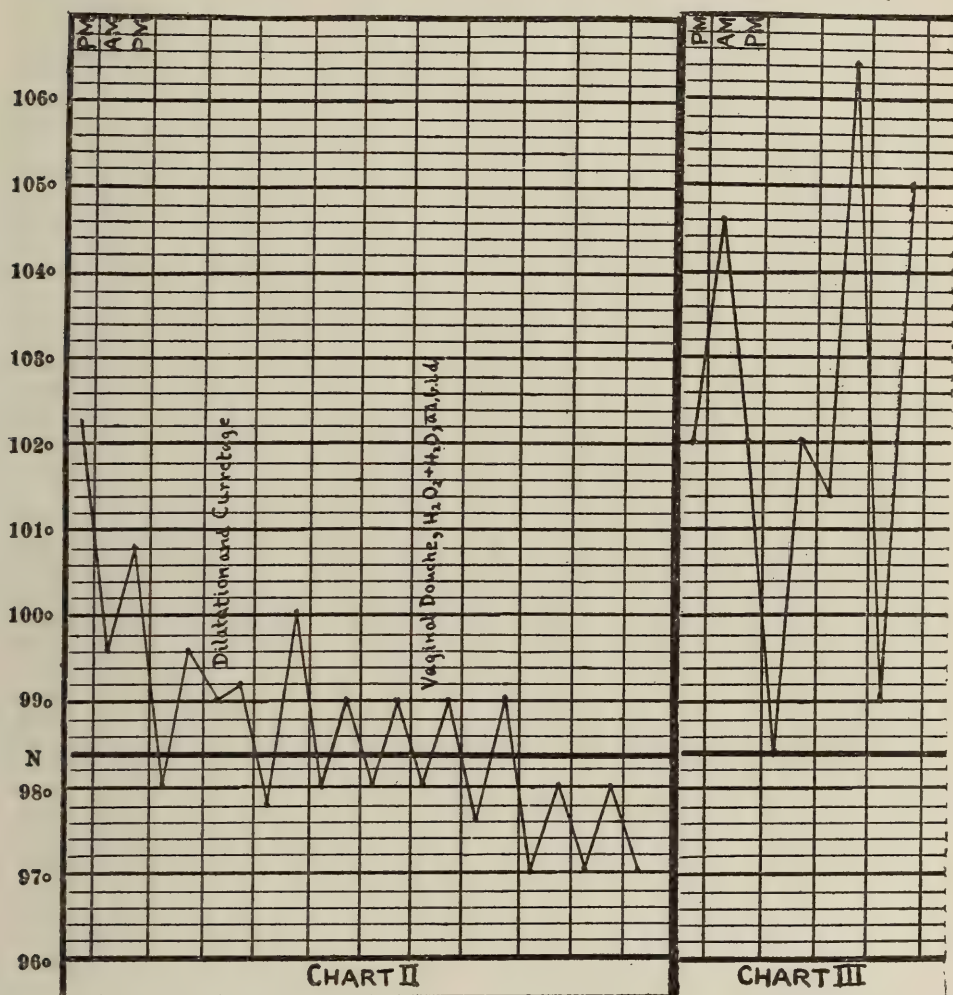
but Klengel, in examining case histories in the Leipziger Klinik found that fully one-fourth of abortion patients developed infection when tampons were employed as against only 17 per cent of infections when no tampons were used. It must not be forgotten here that the packing was done under strict aseptic conditions. Certainly these figures are sufficient evidence that packing is not altogether a harmless procedure. On the other hand packing must be resorted to in private practice either as a temporary measure to check hemorrhage or as a means of emptying and dilating the uterus when conditions are not such that a clean operation can be undertaken.

There are still other measures which should be employed to lessen the chances of infection. Not only the external genitals should be kept clean but also the vagina. Blood clots and masses of decidua hanging out of the uterus into the vagina should be douched out, for these serve as excellent "bridges" on which microorganism can develop and go over into the uterus. Small doses of ergot frequently repeated also favor emptying the uterus. These measures may properly be termed prophylatic in that they lessen the chances of infection. However, it is not my purpose to deal so much with prophylaxis of infection as it is with the infected patient.

Infection postabortum and postpartum are essentially the same, both being types of wound infection. In either case the uterus may or may not be empty, however, in postabortal infection it is less likely to be so. What then shall be the management of an abortion that has become infected? Shall the treatment be active or expectant?

There are many doctors who curette every abortion case without any particular reason for so doing, except that the patient has aborted. No one, I think, will justify this course. I think, too, all well-informed physicians will agree that the uterus should be carefully and completely emptied whether digitally or by means of a blunt instrument in the presence of a serious hemorrhage, whether the patient is septic or not. We should also exercise caution in manipulating the uterus, avoid rough handling thereof by severe traction, or unnecessary injury with Volsella forceps. Shall we evacuate the uterus in the presence of an infection when no alarming hemorrhage exists?

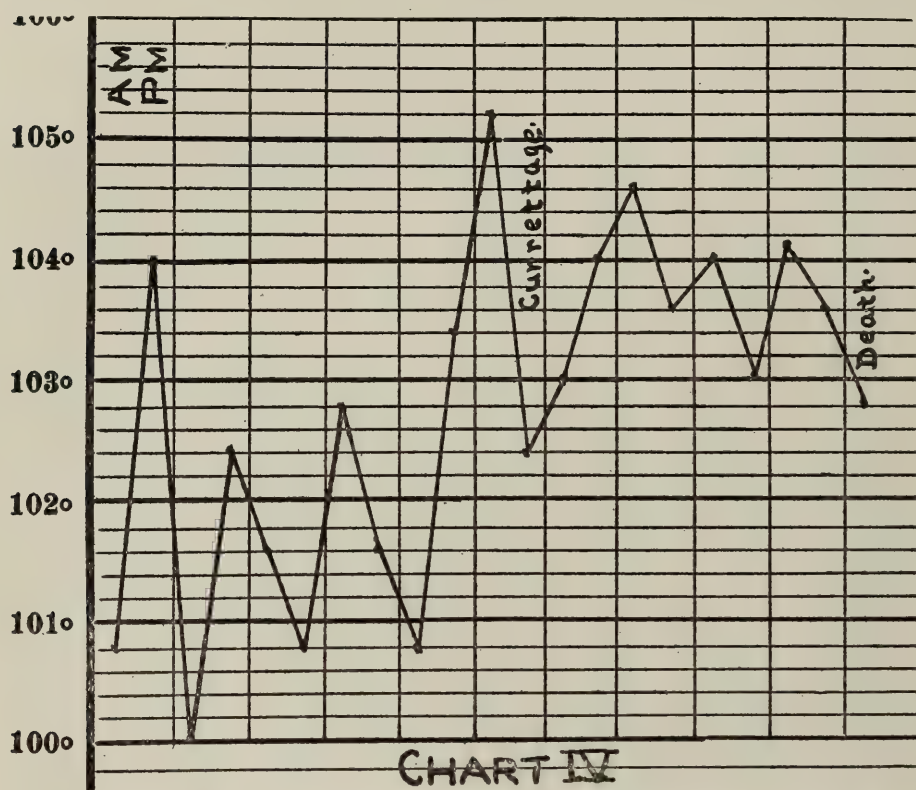
died, whereas of seventeen treated expectantly only 5.8 per cent died, and if I add my own cases to his the mortality is reduced to 4.7 per cent. While I admit that the number treated expectantly is small the relative improvement in the mortality is striking. It might be reasonably objected that even though the expectant plan of treatment is followed evacuation of the infected uterus does not always take place and



that an operation must eventually be undertaken before the patient can be cured, thereby prolonging the stay in bed and making it possible for the infection to further develop and spread.

By means of bacteriological examinations Winter demonstrated that virulent microorganisms disappear in from four to twenty-three days, at which time evacuation of the uterus may be undertaken. In estimating the virulence of the in-

fection Winter lays great stress on the presence or absence of haemolytic streptococci and warns particularly against operative procedures as long as they are present. I had no such bacteriological examinations to guide me but depended upon clinical signs, such as fever, pulse rate, anemia and gen-



eral condition. No operation was undertaken when the temperature was above 102 degrees F. The accompanying charts, I think, will demonstrate that no harm was done by waiting.

In following out the expectant plan of treatment the patient should receive twice daily a hot saline or bichlorid douche. The douche serves the double purpose of cleansing the vagina and promoting contraction of the uterus. Ice bags should be applied to the hypogastrium and the bowels should be emptied. Personally, I employ elixir of iron, quinin and strychnia as a general measure. I also allow a rather liberal diet. The patient is placed in the Fowler position to promote drainage from the vagina. I have had no experience with vaccines or serums for they do not seem to be recommended in acute septic conditions.

When the temperature has returned to normal or thereabouts and remains so for two or three days the uterus may

be safely evacuated. I have not found that this expectant plan even when followed by a curettage appreciably lengthens the stay in bed. When the curetting was undertaken I was surprised at how little the uterus contained. Winter's experience is also that the stay in bed is not materially prolonged. The average stay in hospital in my cases was twenty-one days; one private patient I kept in bed for two months, not because of her infection but because of an acutely dilated heart following an endocarditis as a result of criminal abortion. (Case 3).

It will be noted, therefore, from this brief resume that the employment of vaginal or uterine packs in the treatment of abortions should be greatly restricted because they favor infection. That in the presence of a virulent infection the expectant plan of treatment offers the best result. That where such expectant plan is followed the virulent organisms disappear in from one to three weeks, when the uterus may be safely evacuated.

The following are given as illustrative case histories:

Case 1. Chart I. Ida B., aged 30. Spontaneous incomplete abortion a week before coming to the hospital. Attended by a midwife. Septic four days before admission to the hospital on July 20, 1911. Temperature 103° F., pulse 120. Temperature rose as high as 105, pulse 120. Expectant plan of treatment carried out. Uterus curetted (blunt) August 8, 1911, thirteen days after admission. Left the hospital August 13, eighteen days after admission.

Case 2. Chart II. Julia N., married, aged 22. Spontaneous incomplete abortion three days before admission to the hospital on June 10. Temperature 102.3° F., pulse 100. Curetted four days thereafter. Discharged June 24, 1911, fourteen days after admission. Recovery.

Case 3. Mrs. R. M., aged 29, married. Two attempts at abortion, second one on July 2. Septic on July 4. Temperature 104° F., pulse 130. Endocarditis with dilatation of heart on July 6. Temperature returned to normal on July 20. Kept in bed two months on account of dilated heart. Curetted at end of two months. Recovery.

Case 4. Chart III. A. Y., married, aged 24. Induced abortion on August 4. Admitted to the hospital August 15. Temperature 102° F., pulse 120. Very anemic. Subsequently developed a temperature of 106.8° F., pulse 120. Left the hospital on August 19, temperature 105° F., pulse 120. Admitted to St. John's Hospital August 21. Curetted August 24 when the infection was still active by another physician. Developed pelvic abscess one week later. Recovered in about six weeks. I am inclined to believe that had this case been treated expectantly throughout the course of the infection the pelvic abscess would not have developed.

Chart IV. One of Winter's cases: Septic abortion with hemolytic streptococci. Spontaneous discharge of the fetus on the second day. General condition fair. Curetted on fifth day. Death from sepsis on the tenth day. Winter in his article cites this case as demonstrating the dire results of active treatment, particularly in the presence of an infection due to hemolytic streptococci.

The Adrenal Glands.

By R. G. HOSKINS, Ph. D., (Med. Sc.), Professor of Physiology, Starling Ohio Medical College, Columbus, Ohio.

The adrenal glands, while they have been known anatomically for nearly four centuries are, physiologically speaking, almost a novelty. Like the other ductless glands, they have been the objects of endless fanciful speculation, but the first significant clue to the mystery of their function was obtained by the physician Addison when, in 1855, he discovered their relation to the disease that bears his name. Stimulated by this discovery, the French physiologist, Brown-Séquard, succeeded the following year by extirpating the adrenal glands in reproducing essentially the syndrome characteristic of Addison's disease. His experimental animals invariably died in a condition of marked asthenia, muscular and circulatory. Then occurred a curious example of the blocking of scientific progress by a further discovery. Two other investigators, Phillipeau and Hartley, repeated Brown-Séquard's work, but each, unfortunately, selected for his experiments the white rat. This animal, having an adequate supply of accessory adrenal tissue, is able to survive extirpation of both glands. These latter investigators concluded, and convinced the scientific world, that the death of Brown-Séquard's animals was due merely to operative violence and the conclusion seemed justified that the glands are at least not essential to healthy existence.

This misconception so stifled scientific interest that no further significant work was done until, in 1894, the subject was reopened by the discovery of Doctor Oliver, another English clinician, that in certain of his patients the administration of gland substances exerted a considerable influence upon blood pressure. He was led thereby to undertake, with Professor Schaefer, a series of experiments which led to the discovery that the injection of adrenal extract produces a powerful effect upon the vital activities of an animal, particularly upon the circulation. Similar results were independently secured and shortly afterward published by Cybulski and Szymonowicz.

Much experimental work has since been done toward a

An address delivered before the Experimental Medicine Section of the Academy of Medicine of Cleveland, February 9, 1912.

further elucidation of the functions of the glands. From all the data accumulated one discovery stands out as of fundamental significance. Elliott, in a brilliant paper, in 1905, reported that the injection of epinephrin is exactly equivalent to the stimulation of the sympathetic, i. e., the thoracico-lumbar autonomic nervous system. The result of such injection depends in any organ upon whether or not it receives sympathetic fibers. If no such fibers are present no effect is produced. If such fibers are present, the effect is excitation or inhibition, depending upon which function is mediated by these fibers. Finally, in an organ in which sympathetic impulses are infrequent, the injection of epinephrin has correspondingly slight effect. The influence of epinephrin, incidentally, is exerted neither upon the organ tissue nor the nerves proper, but upon a "receptive substance" between the nerve terminations and the tissue. The effect persists even after section and degeneration of the nerves.

In summary it may be said that the adrenal glands furnish an endosecretion that is essential to the activity of the muscular structures of the body. In its absence a condition of profound asthenia of the muscular and circulatory systems develops. This same, or a second secretion stimulates selectively the sympathetic nervous system, leading, when present in excess to high blood pressure, inhibition of peristalsis in the alimentary canal, dilated pupils, etc. Other observations there are, of course, in plenty, but their significance now seems subsidiary or problematic.¹

The most important question now to be answered in regard to the adrenals is: "How are they controlled?" Considering the facts that the active principle of the glands exerts an appreciable influence in dilutions of 1:500,000,000 and that this influence is exerted in the so-called "vital organs," it is a matter of considerable interest as to when and under what conditions this highly potent substance is being contributed to the blood stream. Another question of interest is whether the peculiar relationship between the adrenals and the sympathetic nervous system is of constant utility, that is, whether the glands exert a constant tonic influence upon the system or whether it is merely a reserve mechanism for times of special stress. It is to a consideration of these two questions particularly that this paper is directed.

As to the control of the glands, direct stimulation of the splanchnic nerves has been shown by a number of observers to cause an augmented epinephrin reaction in blood from the adrenal veins. It may be mentioned in passing that such stimulation, with a consequent discharge of secretion from the glands, must be a frequent result of abdominal operations.

The conditions, however, under which effective nervous discharge to the glands ordinarily occurs has only recently been investigated. The facts that epinephrin injection is tantamount to stimulation of the sympathetic nervous system, that the adrenals are themselves innervated by this system, that the major emotions are accompanied by discharge over the sympathetic nerves, leading to high blood pressure, dilated pupils, etc., and that such effects persist for a considerable time after the apparent cause has ceased, suggested to Professor W. B. Cannon that there is probably an adrenal factor in such manifestations. He noted particularly in his X-ray work upon the alimentary canal that if the subject of experiment became excited or angry, peristalsis in the stomach promptly ceased and was reestablished only at a considerable interval after quiet was restored. The delay, he surmised, might be due to an excess of circulating epinephrin. That such an excess does result from strong emotion he, in collaboration with de la Paz, has been able to demonstrate.²

The procedure followed was to collect blood from an animal, subject the animal to emotion, and then collect a second sample of blood. The "quiet" and the "excited" bloods were then compared as to their epinephrin content. As experimental animals cats were used. Somewhat aged males of pugnacious proclivities were found most susceptible to suitable emotions. With care to avoid excitement, the animal was bound to a comfortable holder. Then under local anesthesia a well-oiled flexible catheter was introduced through a femoral vein into the inferior vena cava, and a sample of "quiet" blood secured from just anterior to the adrenal veins. A dog, preferably of nervous temperament, was now brought near. The natural antagonism between the two species promptly came into play to evoke the requisite emotion. This was manifested, as the dog barked, by angry cries, dilated pupils and lashing tail. Then a second sample

of blood was secured from the same region as before and compared with the first.

Preliminary to the experiments proper a usable test object for epinephrin in blood had to be discovered. After considerable search such an object was found in the longitudinal musculature of the cat's intestine. This tissue in warm oxygenated Ringer's solution for considerable lengths of time will undergo spontaneous rhythmic contractions, but upon the addition of epinephrin to a dilution even as high as 1:20,000,000 the contractions promptly cease. Later, in my own experiments, it was discovered that segments of rabbit's intestine are still more sensitive to epinephrin, and in subsequent work along this line such segments were used.³ The availability of this method was independently discovered by Professor G. N. Stewart.⁴

It is important in such experiments that a suitable anesthetic be employed, both in the animal furnishing the intestinal strips or segments and in the one contributing the blood to be tested. Without any exhaustive investigation of the problem it was found that urethane gives satisfactory results. It produces a long-lasting anesthesia and neither checks the activity of the test tissue nor causes any demonstrable discharge from the adrenal glands. Ether, on the other hand, greatly lowers the irritability of the intestine and probably stimulates the glands themselves.

The epinephrin tests are made as follows: From an anesthetized rabbit a segment of small intestine, two or three centimeters long, is removed and suspended in Ringer's solution in a cylindrical container which is surrounded with water at 39° C. Through the cylinder a slow stream of oxygen is bubbled from a supply tube in the base. One end of the segment is attached to a thread leading out through the supply tube while the other end is connected with a heart lever which writes on a smoked drum. Rhythmic contractions of the segment usually begin immediately and continue for hours. If, however, epinephrin is added, the contractions, and usually the tonus of the segment are instantly depressed. This result has been secured, in the most favorable cases, in a dilution of 1:500,000,000. The threshold rises, however, until, at the end of three hours, it may require a hundred times as much of the drug to produce an effect. If, instead

of adding epinephrin, the Ringer's solution is substituted by normal blood, a sharp increase of tonus and often of amplitude of contraction occurs. If now, a second sample of blood containing epinephrin be substituted, the characteristic inhibition follows.

Using this method, Cannon and de la Paz found that anger and fear cause a marked augmentation in the epinephrin content of the blood. That the depression secured in the tests was due to epinephrin discharged as a result of the emotion is indicated by the following facts: (1) There are few other substances occurring in blood that are known to cause such a reaction in smooth muscle. (2) Blood from the vena cava before excitement causes but little more depression than that from the femoral vein, whereas, after excitement, a marked difference is observed. The caval blood differs from femoral blood only in containing contributions from the adrenal and renal veins. The depression was not due to renal blood as was shown by direct test and must have been due, therefore, to adrenal blood. (3) If the adrenal glands are removed previous to the excitement, no reaction is obtained, even though the animal shows the characteristic signs of emotion. It may be concluded, therefore, that fear and anger are potent causes of adrenal activity.

If such is the case, it would probably be true that pain, the fundamental source of these emotions, would cause a similar result. That such is the case, I had opportunity last summer, in collaboration with Professor Cannon, to demonstrate.⁵ We did not care to subject experimental animals to actual pain, but employed its physiological equivalent, strong sensory stimulation under urethane anesthesia. A faradic current was applied to the sciatic nerve. This was made strong enough to dilate the pupils and was gradually increased for five to ten minutes sufficiently to keep them dilated. Vena caval blood collected before and after such stimulation was compared by the method previously described. The clear cut epinephrin reaction thus secured in the "stimulated" blood showed that the adrenals had been stimulated.

As a practical matter it is to be noted that any major surgical operation is essentially a repetition of our experiments. It is probable that sensory stimulation long continued results in an exhaustion of the adrenals. It is possible that

such exhaustion may be a factor in that highly complex condition, surgical shock.

The stimulation employed in our experiments caused a marked hyperpnea, resulting, supposedly, in a condition of acapnia. It is known that certain abnormal bodily conditions, such as rapid heart beat and glycosuria result from this condition. It was possible, therefore, that the hyperpnea itself might have contributed to the adrenal activity. Upon trial, however, it was found that rapid ventilation of the lungs with the thorax open, even though it produced an apnea of a minute or more, causes no appreciable epinephrinemia.⁵

Asphyxia is another condition which results in numerous physiologic perturbations. Its effect upon the adrenals was also investigated. A modification of our previous technique had to be made because of the fact that the blood of an animal after extreme asphyxia itself causes a depression of intestinal contractions independent of the epinephrin content. A simple comparison, therefore, of vena caval bloods before and after asphyxia does not give intelligible data. The epinephrin effect is masked by that of the asphyxial products.

A comparison was made, therefore, of femoral and vena caval bloods before and after asphyxia. It was found that normally there is comparatively little difference between blood samples from the two sources, but after asphyxia the vena caval blood has much the greater depressing power.⁵ It was concluded, therefore, that asphyxia as well as pain and emotions cause an augmented secretion from the adrenal glands.

The question naturally and properly arises: Of what use to the animal is this reaction? Considering the fact that adrenal tissue is found in such a great number of animal species, it is *a priori* likely that some important purpose is subserved.

A very broad hint as to such a purpose is obtained from a consideration of Addison's and Brown-Séquard's observations as to the sthenic function of the glands, using, to unlock the mystery, Crile's "master key," phylogenetic association, i. e., racial habit. In the racial history pain and fear have always resulted in a fight or a hasty departure. Either procedure makes special demands upon the muscular system. Excessive muscular activity in turn leads to a condition es-

entially equivalent to partial asphyxia. This condition, as well as the antecedent pain or emotion, causes an augmented secretion from the adrenal glands. If this secretion has a sthenic influence upon the muscles, the advantage is obvious. This idea in a somewhat similar connection has been advanced by Cannon, Shohl and Wright in explanation of the utility of emotional glycemia.⁶

As to the mechanism whereby the sthenic influence is mediated, there are at least three possibilities, any or all of which may be involved. There are on record a number of little regarded observations that epinephrin applied to skeletal muscle, directly or by injection into the blood stream, causes it to contract more forcibly.¹⁹ These observations, in the case of the frog, I have been unable to confirm. In the case of rabbit intestine, however, I have several times noted an augmentation of contraction under the influence of minute quantities of adrenalin.⁷

Another possible explanation of the increased efficiency of muscle during a condition of epinephrinemia is that, according to several observers, this condition leads to an increase in the circulating dextrose, whereby the muscle may be better supplied with fuel material. In an investigation of this possibility Cannon and Nice have learned that stimulation of the peripheral end of a cut splanchnic nerve causes in a fatigued muscle an augmented efficiency, amounting in some cases to a hundred per cent. It has been known for some time that splanchnic stimulation causes an increase in the quantity both of epinephrin and of dextrose in the blood. Whether, however, the simultaneous increase in muscular efficiency is due to a direct sthenic effect of the epinephrin upon the tissue itself, to glycemia or to the increased blood pressure resulting from such stimulation, Cannon and Nice, "despite strenuous endeavors" have as yet been unable to determine.⁸ It seems probable that all three possibilities are utilized; such synergic mechanisms are not unknown.

It seems, on the whole, fairly well demonstrated that during times of special stress the adrenal discharge is increased, whereby the influence of the sympathetic nervous system is augmented. Whether, however, during periods of more quiet existence this system by a minimal discharge is kept in tonic activity is questionable. Such is the usual as-

sumption, but it is without adequate foundation. It is based upon a supposition that minimal quantities of epinephrin have an effect similar to, but of less degree than that produced by the relatively large quantities that have been used in experimental investigations. The assumption, however, is not necessarily true. If the threshold were sufficiently low, a sthenic effect only might be obtained in tissues, by quantities that would leave the sympathetic system unaffected. In tissues receiving inhibitory fibers through the sympathetic system, either an augmentation or a depression of activity might result from epinephrin, depending upon whether the muscle alone or the inhibitory mechanism were being affected.

As a matter of fact just such results have been noted. Most observers have reported depression of intestinal activity after treatment with epinephrin, but Ott, Magnus, Bunch and I have each noted instances in which distinct augmentation occurred.⁷ In my experience the augmentation has always been due to quantities too slight to affect the inhibitory fibers, as was shown by subsequent depression following the use of larger quantities.

Langley and others have shown that circulating epinephrin is quickly destroyed.¹ If, therefore, the sympathetic system were normally kept in tonic activity by adrenal secretion, the removal of the influence of these glands should result in an immediate variation of the activities under sympathetic control. There should be, for instance, a prompt fall of blood pressure due to a loss of vasomotor tone. Young, however, who seems to have investigated the matter most thoroughly, found no constant fall of pressure following ligation of the adrenal blood vessels.¹ A disparity in the recorded observations along this line is probably due to a failure in some cases to start from a normal epinephrin level. If, preceeding the ligation, the glands were being unduly stimulated in any of the ways previously discussed, for instance, by splanchnic irritation, the cessation of the resulting epinephrinemia would result, of course, in a fall of pressure *to a normal*. The fall of pressure resulting hours or days after adrenal extirpation might be due to a failure of a normal sthenic influence, but hardly to a discontinuance of a tonic stimulation of the sympathetic system. Incidentally, this relationship of the adrenals to normal blood pressure is now

under further investigation in our laboratory at the Starling Ohio Medical College.

In summary, it may be said that the available data, while not conclusive, indicate that the assumed tonic influence of the adrenals upon the sympathetic nervous system is non-existent, but that during periods of special stress there is an augmented secretion of the glands which does reinforce this system. Through some mechanism, in part probably this augmented sympathetic activity, there is a marked increase in muscular efficiency.

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Buphthalmia: Case Report.

By S. H. MONSON, M. D., Cleveland, Ohio.

Buphthalmia, also called hydrophthmia and infantile glaucoma, is a not very frequent condition. According to the statistics of the eye clinic of Leipsic, it occurred in 0.035 per cent of cases and in the Tübinger clinic in 0.079 per cent of cases. It is usually bilateral, but may be unilateral. According to Parsons, in one hundred and sixteen cases, seventy-four were bilateral and forty-two cases were unilateral. In the unilateral cases the right eye was affected twenty times and the left eye twenty-one times. Consanguinity of parents has been noticed in several cases and Laqueur found five cases of children of consanguineous marriages among thirteen cases of buphthalmia.

The disease probably always dates from birth or before, but owing to its insidious nature, cases rarely come under observation until the condition is fully established. Gros col-

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lected forty-five cases, in twenty-seven of which buphthalmia was present at birth or during the first week.

The condition is characterized clinically by an enlargement of the globe in all directions due to the gradual distension of all the coats from the increased pressure. The cornea is especially prominent, often comprising as much as one-third of the outer coat, and may be clear, opalescent or bluish. The sclera has a bluish tinge, especially near the limbus; due to thinning. The anterior chamber is very deep. The iris shows no inflammatory signs, although its markings are not as sharply defined as usual and it looks dull. The pupil is round and usually dilated and reacts sluggishly to light, probably due to an atrophic condition of the iris, even when there is a fair amount of vision. The lens is generally clear although in the later stages of the disease, probably due to malnutrition, it often becomes cataractous. According to Fuchs, the lens, in contrast to the other parts of the eye, is smaller than normal. There is also a backward displacement of the lens due to the slight displacement backwards of the origin of the suspensory ligament in the ciliary body, brought about by the stretching. Ophthalmoscopic examination in the early stages shows that the media are clear and that the retina and the choroid are normal. The optic disc is cupped and, as first pointed out by Mauthner and Arnold, the appearances are the same as in adult glaucoma but the variations in the size of the vessels and arterial pulsations are less commonly observed. Optic atrophy follows as the case progresses but posterior staphyloma is infrequent. There is usually proptosis, and the tension is raised. Inflammatory signs may or may not be present.

The fundamental cause of this condition is increased intraocular tension and various theories have been brought forth to account for it. The view held by Haab and others, that it is due to hypersecretion, is considered improbable on the same grounds which hold good for adult glaucoma. Most investigators agree that the condition is due to defective filtration, but the exact cause and mechanism which bring this about are still in doubt. Leber and Bentzen proved that the high tension in buphthalmia is due to defective filtration, by showing by actual experiments that the rate of filtration in a buphthalmic eye is considerably below normal. Anatomical

investigations also show that, though the angle may be apparently open, it differs profoundly from the normal condition. Treacher Collins found that the ligamentum pectinatum is much more extensive in the lower mammals than in man. It consists of an external laminated zone with slit like spaces and an inner cavernous zone with large irregular spaces. In man the cavernous zone is practically absent, the angle of the anterior chamber being prolonged farther outward than in the eyes of the lower mammals. This alteration is associated with an alteration in the relative size of the cornea and the globe. The decrease in the relative size of the cornea to the globe in man is accompanied by a simplification of the ligamentum pectinatum and a prolongation of the anterior chamber outward. In the process of development of the human eye, it passes through the stages in which the relation of the parts about the angle of the anterior chamber and the relative size of the cornea to the globe are the same as in the lower animals and Collins ascribes the condition of buphthalmia to the abnormal persistence of the prenatal condition of the ligamentum pectinatum. This is supported by the fact that in many cases strands of tissue stretch between the base of the iris and the cornea. He considers that the prolongation outward of the anterior chamber in the normal human eye facilitates the exit of aqueous and that this is rendered necessary by the diminished area which the ligamentum pectinatum occupies in proportion to the size of the eyeball. If the prenatal condition persists and the eyeball attains normal size, then delayed exit of fluid occurs and there is increase of tension with enlargement of the eyeball. Obliteration of the venous network of Schlemm has also been considered as a cause of buphthalmia and Römer found the canal of Schlemm absent in over one-third of the whole circumference in one case and Gros found it completely absent in another. Reis found more or less obliteration in seven cases. Parsons concludes that while there is a definite obstruction to the filtration of lymph from the eye at the angle of the anterior chamber in buphthalmia, it is still an open question whether this is due to congenital arrest of development or to an intra- or early extra-uterine inflammation.

The following case came under my observation a short time ago:

E. M., aged nine years. The mother says that when the boy was about eight months old, she noticed a peculiar blueness of the left eye and that it looked different than the other one. The eye gradually grew larger and larger and seemed to bulge forward. When he was about two and one-half years old she consulted several physicians concerning the eye and took him to the Wills Eye Hospital and was told not to have anything done as long as the eye was quiet. The eye remained in about the same condition until a few weeks ago, when he received a blow on the left side of the face and head. The following day the boy complained of pain in his eye and then it was noticed that there was no longer any bulging of the eye. Since then he has had considerable pain and photophobia, causing him to keep both eyes tightly closed. The mother says that since that time he has had a continual discharge from his nose, as if he had a cold all the time.

The patient keeps both eyes closed and the head bent down most of the time. There is a great deal of photophobia and he can open the right eye only with a great deal of effort. The right eye appears normal and vision in it is 6/9. There is profuse lachrymation from the left eye, and it is extremely difficult to make a satisfactory examination. There is no bulging of the eye ball.

The cornea is clear but very large and there is a peculiar blue color about the limbus and extending to the sclera. The left eyeball appears larger than the other. There is intense circumcorneal injection. The anterior chamber is very deep; the pupil is somewhat dilated and does not react to light. The iris is dull. Tension could not be determined with any satisfaction and it was impossible to make an ophthalmoscopic examination of either eye. There was not even light perception in the left eye.

From the history of the case and the inflammatory signs present in the left eye and the blepharospasm of the right eye, enucleation of the left eye was determined upon, and he was operated at Charity Hospital January 30, 1912. Recovery was uneventful, and since the operation he has kept the right eye open without any effort and vision in it is 6/6, but it is impossible as yet to make an ophthalmoscopic examination.

Investigations on the Gastro-Intestinal Absorption of Drugs.

By TORALD SOLLMANN and PAUL J. HANZLIK.

(From the Pharmacological Laboratory, Western Reserve University, Cleveland, Ohio.)

We have been engaged for some years in studying the absorption of drugs from the alimentary canal by the use of quantitative methods. So far we have completed the investigation of phenol and of sodium iodid. The chemical, physical and pharmacological characters of these two substances are very different. Accordingly, we have been able to show that there are fundamental differences in the phenomena of their absorption. On the other hand, notwithstanding this dissimilarity, they also present some interesting features in common.

The general plan of the experimentation consisted in placing known quantities of the substances into the ligated stomach or intestinal segments of anesthetized dogs or cats, under varying conditions. The portion remaining unabsorbed in the contents and tissues of the viscus were then determined quantitatively. The amount of the substance which had disappeared, which had been absorbed, was thus accurately known.

We may premise that the general phenomena of absorption are absolutely alike in dogs and in cats, and in the different portions of the alimentary tract. The variations are purely quantitative.

It is also interesting to note that the rate of absorption is not markedly affected (within wide limits) by the extent of the absorbing surface, that is, by the length of the intestinal loop into which a given amount of the drug is placed. Nor does the concentration in which the drug is applied have much influence on the rapidity of its absorption.

One of the most striking phenomena, with both drugs, is that the absorption is not a steady process. In both cases it proceeds very rapidly for the first few minutes, and is then markedly checked or even practically inhibited. For instance, some 35% of the phenol, or 50 to 75% of the iodid is absorbed within ten minutes after their administration. The exact figures vary, of course, in different experiments. The amount

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absorbed at the end of two hours is but very little greater—some 25 to 65% of the drug remains unabsorbed during the duration of the experiment. The phenol and the iodid both present this phenomenon of inhibiting their own absorption. The mechanism of the inhibition, however, is quite different in the two cases.

In the case of phenol one would think at once of local injury of the absorbing cells; but this is not the correct explanation. If some of the drug is placed in a ligated loop of intestine and, after a time, a second portion of phenol is placed into a fresh loop, considerably less is absorbed from the second loop. In other words, the absorption of phenol from the first loop has checked the absorption from the second loop. The check may, therefore, be produced without local contact and is, therefore, not a local action. Another argument against interpreting the check as due to injury of the epithelium is the fact that the absorption of phenol is but little affected when the epithelium is injured by other means. Since phenol generally lowers the blood pressure this would furnish a tempting explanation of the inhibition. However, the two phenomena do not go parallel: The absorption of phenol (and incidentally also of the iodid) is scarcely affected by changes in the general blood pressure, unless this falls to the shock level.

On the other hand, the absorption of phenol is greatly influenced by changes in the intestinal circulation. By measurements of the circulation time, we succeeded in showing that phenol greatly slows the intestinal circulation, even when it has little effect on the general circulation. The check in the phenol absorption is due, therefore, to interference with the intestinal circulation.

Incidentally, we may point out that, in view of the slow absorption, gastric lavage should be instituted in phenol poisoning, even if hours have elapsed before the patient comes to treatment.

The mechanism of the iodid inhibition is quite different: This is strictly local; for it cannot be produced by placing the iodid into another loop, or by injecting it intravenously. It is only produced by direct contact, and is confined to the epithelial surface to which the iodid has been applied.

Moreover, changes in the local or general circulation have

relatively little effect on the absorption. On the other hand, injury to the epithelium retards the iodid absorption greatly. It will be observed that all of these phenomena are just the opposite of those which we have described for phenol.

It follows, then, that the check of iodid absorption depends upon some modification in the absorbing epithelium. This could hardly be in the nature of an ordinary injury—for our standard concentration (1 per cent) is too dilute to be irritant. Moreover, we discovered the very interesting fact that the absorption of iodid is also markedly retarded by the presence of sodium chlorid in concentrations as low as 1 per cent, and even as low as 0.2 per cent. It cannot be supposed that this low concentration of sodium chlorid injured the epithelium: the effect must be a physiological one. In other words, the presence of a haloid salt, even in very small quantities, impairs the permeability of the intestinal epithelium to further portions of haloid ions.

This brings up another interesting question. The concentration of sodium chlorid which checks the absorption of iodid is no greater, and may even be smaller, than the chlorid concentration of the plasma, and presumably of the protoplasm. This suggests that the chlorid ions in tissues, and presumably in serum, act differently than the chlorid ions in simple watery solution. This hint, which we hope to follow up, may throw light upon the mechanism by which the body preserves its salt content nearly constant, notwithstanding the great variations in the salt income.

We also wish to report on some experiments on post-mortem absorption: Intestinal absorption is not confined to the living animal but may occur quite extensively after death. The postmortem absorption may amount to 47 per cent of phenol, 35 per cent of sodium iodid and 15 per cent of alcohol.

It is difficult to trace the channel of the postmortem absorption of these drugs; but we have found that the absorption of potassium ferrocyanid, after death as well as during life, occurs exclusively by the lymphatic trunks. This holds true whether the solution is injected into the intestine or intramuscularly. It is also seen when a leg, deprived of its skin, is immersed into the solution. The salt can be traced (by the blue color with ferric chlorid) through the lymph vessels to the next lymph gland, but not beyond (in dead ani-

mals). This postmortem lymph flow can usually be demonstrated six hours after death, and occasionally even for 48 hours. It is independent of gravity and injection pressure. It may possibly be due to the osmotic pressure of the solution, which was of 10 per cent concentration. This, however, does not explain why the ferrocyanid was absorbed only through the lymphatics; at no time would it be demonstrated in the blood vessels. We cannot explain the reason for this selective absorption.

Causes and Control of Insanity.

By A. G. HYDE, M. D., Assistant Physician, State Hospital for the Insane, Cleveland, Ohio.

The object in presenting this paper is to show that insanity is not an uncommon disease. That it is increasing at a rate considerably greater than our general population. That certain definite causes are well known, that other causes are more or less clearly understood but await further study, and that more active measures for the control of this disease must be waged than is being done at the present time. Careful estimates show that there were more than 250,000 insane people in the hospitals of the United States in 1910, and that it cost during this year to care for this large number over \$50,000,000. This does not take into consideration the immense amount of money invested in buildings and land, and the appropriations necessary each year for new quarters to accommodate the increase in numbers and for the improvement of the present buildings.

About one-sixth of the appropriations every year in this State are for the care of the insane alone. In the year 1890 the total number of insane cared for in Ohio was 6,409 or one to every 565 of our population. In 1900 the number cared for was 9,868 or one to every 422 of our population, and in 1910 the number cared for was 13,333 or one to every 357 of our population. These figures are for the insane alone and do not take into account the 3,300 epileptics and feeble-minded for whom the state is caring and who are closely related to the insane. While the state has increased 32 per cent in its popu-

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lation from 1890 to 1910 the insane population has increased 108 per cent. These statistics are of general interest and show the cost to the state from the increase in insanity; but they fail to show the loss in earnings of those committed to the hospital, for too often it is the head of the household who is afflicted and the loss of his earnings in many cases means misery, sacrifice, deprivation, or want to those dependent on him.

Of all diseases that afflict the human race, to the laity, especially, insanity is probably the one that is the most mysterious and elicits the most sympathy.

Taking up the causes of insanity I think it proper to classify them under two headings: first, predisposing; second, contributing. Under the first must necessarily be placed heredity, syphilis, alcohol, drugs, and traumatism. The second or contributing causes are many; almost any of the disturbing elements may precipitate an attack and more especially in the presence of any of the factors in the first group. Among the more important may be mentioned the infectious diseases, autointoxications, pregnancy, and the emotional states such as fright, grief, worry and domestic trouble. Few if any of us go through life without encountering some of these; while, however, the strong are immune, the susceptible or weak are liable to suffer.

Heredity: Hospital records show us that heredity plays a most important part as a cause of insanity. The exact condition under which transmission occurs has never been fully understood, but studies by Mendel, and later by Goddard and by Rosanoff have revealed some data which seem to indicate that some forms of insanity are transmitted from parent to offspring in the manner of a trait which is in the Mendelian sense recessive to normal. The results of such studies may be briefly stated as follows:

First: Both parents neuropathic, all children will be neuropathic.

Second: One parent normal, but with a neuropathic taint from one grandparent and the other parent neuropathic, half the children will be neuropathic and half will be normal but capable of transmitting the taint to their progeny.

Third: One parent normal and of pure normal ancestry and the other parent neuropathic, all the children will be nor-

mal, but capable of transmitting the taint to their progeny.

Fourth: Both parents normal but each with the neuropathic taint from one grandparent, one-fourth of the children will be normal and not capable, one-half will be normal but capable of transmitting the taint, the remaining will be neuropathic.

Fifth: Both parents being normal, one of pure ancestry, and the other with the neuropathic taint from one grandparent all the children will be normal, half of them will be capable and half not capable of transmitting the taint to their progeny.

Sixth: Both parents normal, and of pure normal ancestry, all children will be normal and not capable of transmitting the neuropathic taint to their progeny.

Doctor Goddard's interesting investigations show as an example of heredity where a young man of an aristocratic family wronged a feeble-minded girl and tracing only one member of the family in each generation that this man became the ancestor of 1,146 human beings of whom 580, or more than one-half were insane and feeble-minded, many of them with criminal records. The influence of heredity is strongly impressed upon one in observing the admissions to the State Hospital. I recall a recent admission of a female patient where an hereditary influence was marked, who was the mother of four children that are at present being cared for in different institutions in this State.

Alcohol and Drugs: It is the consensus of opinion among alienists that alcohol is a direct and unmistakable cause of insanity in a large number of cases. Statistics show that 30 per cent of men and 10 per cent of women admitted to hospitals for the insane are suffering from conditions due to alcohol. During the last biennial period 31 per cent of the cases of men and 11 per cent of women admitted to the Cleveland State Hospital were suffering from conditions due to alcohol. New York statistics for 1910 showed that 28 per cent of the insane under care owed their insanity to alcohol as the determining cause. Morphin and similar drugs also figure to some extent as well-known causes.

Syphilis: This disease is second only to alcohol. Statistics show that from 10 to 20 per cent of hospital admissions are due to it; our records for the last two years show it to be the cause in 13 per cent. This class includes necessarily the

cases of general paralysis of the insane; 87 per cent of the cases admitted to this hospital suffering from paresis show a positive reaction of syphilis, either acquired or hereditary. This undoubtedly is one of the most dreadful forms of insanity that we are called upon to care for, and it is absolutely incurable by any means known to the medical profession at the present time.

Traumatism: Traumatism or head injury plays but a small part as a cause. Covering a period of five years with 2,500 admissions to the Cleveland State Hospital hardly 1 per cent could be traced to this cause. The laity are prone to lay much stress upon this factor, and there is scarcely an admission but sooner or later we get a history of injury from some relative or friend quite sure that it has some important bearing upon the cause.

Under the second division or contributing causes it is not generally understood that many cases of insanity follow the infectious diseases. After the fevers and influenza we find many cases of melancholia developing. We also find frequently that after confinement puerperal insanity develops. Autointoxication is a cause that is being more appreciated by physicians than formerly. Among the other causes met with in practice with special frequency are those coming from the mental strain of overwork, worry, business reverses and domestic trouble.

Several factors which can be mentioned as the cause of the apparent increase in this disease are as follows: The increase in the number of alcoholics and syphilitics. The diminishing aversion of the general public to the state hospitals; undoubtedly many are being cared for in hospitals that were formerly cared for at home. The longevity of the race is increasing, and also the longevity of the insane in hospitals has lengthened materially; this fact alone would account for some increase. The character of the immigrants admitted to the United States each year has added greatly to the number in our state hospitals. During the last fiscal year there were 749,642 immigrants who reached the United States through Ellis Island alone; of these 249 were found to be mentally defective under the necessarily hurried examination at this place, and undoubtedly many more of this number would have been found to be defective if they had been kept under observation

for a longer period. Our records show that 51 per cent of our population are foreign born.

Knowing many of the causes of insanity the question naturally arises, what can be done to control it? It seems imperative that the state must adopt some means which are more practicable and capable of better results than those in vogue at the present time. We understand and realize that prevailing methods cannot be overcome all at once. We now know that restraint is unnecessary in caring for the insane; that massive furniture, straps and wristlets are things of the past, and we know that not only were they unnecessary for the control of patients, but the causes for which they were provided were often exaggerated by their use. Understanding the causes, how can this knowledge be put to the best use and in what way would it bring the best results? The problems of cause and prevention of these cases, of an early cure, and of avoidance of recurrences, press more and more for solution. In this solution several lines are indicated.

First: The education of the general public as to the nature, cause and modes of prevention of the disease. One may assume that if people generally understood the facts they would, to some degree, regulate their lives accordingly. Every individual prefers health to sickness, sanity to insanity, and freedom to confinement. If individuals knew that association with prostitutes was the source of syphilis, and knew the ultimate consequence of this disease they would act differently. The same may be said in regard to alcohol; if they knew its habitual use brought nearly one-third of each year's admissions to our state hospitals and the handicap that it placed upon their offspring there would be a diminution of this rate. We are, as a whole, open to reasoning and it is worth while to make this knowledge known. We cannot help but believe that if the general public, and especially the class who are said to be sowing their wild oats, knew certain things that are common knowledge to the medical profession their conduct in many instances would be profoundly influenced. It is our custom and duty daily to give advice to our patients along lines that will preserve and better their physical health; just as essentially is it our duty to point out and show the errors and relations of certain conditions that produce mental derangement. New York seems to be the pioneer in this

work, but other states have also passed some commendable legislation, and the State Board of Charities in this State and others have done much in keeping with these ideas. To best meet this end it seems that an educational campaign should be carried on through the State Board of Charities, the County Medical Societies, the various dispensaries, the public schools, and in short, through all the various organizations that are willing to help in such an effort for the public good.

Second: Every city of any size is coming to have its tuberculosis dispensary where any individual can secure a thorough examination. Just as essential is it that every center of population should have a clinic where any person on the verge of a nervous breakdown, or who may show any unnatural mental symptoms, may go, or may be taken quietly for the proper advice and treatment. Such dispensaries for the earlier recognition and treatment of mental diseases exist in several foreign cities and in a few in this country. They have a field of marked usefulness and will undoubtedly become more popular as their need becomes more generally recognized by the medical profession and the general public.

Third: A psychopathic hospital, in the true sense of the word, attached to a general hospital and in charge of some person who understands mental diseases, their care and treatment; its function to be to provide a proper place for the detention for a temporary period of the alleged insane pending a proper disposition of their cases, and to receive borderland and undetermined cases for observation and decision. It is essential that medical care of these cases should begin before the time when sufficient mental change has occurred to make a commitment possible, such care to be purely initial and not protracted.

Fourth: An aid bureau for persons who have been discharged from insane hospitals. Berlin has such a bureau and it has given good results. People who have been discharged from state hospitals and again have to take up the burden of life have always caused anxiety and difficulty to public charity. The fundamental idea of this arrangement is that these people need help directed by proper persons. The latter are advised when the patient is able to leave the hospital so that if he has a home the environments can be arranged to his advantage; if he has no home a suitable lodging place is

found. Employment fitting the individual capacity and condition of the patient is to be provided. The conduct of the patient is to be superintended. Lastly he is to be aided in all the business relations of daily life.

While all these various ideas will have an influence, to me it seems that in conjunction with these we need more drastic legislation. Already we see that by legislation, or by the influence of an enlightened public, it may be possible here and there to direct or restrain the growth of population and thus better the future generation. If the feeble-minded and weaker be allowed to survive, and if, as seems to be the case at the present time, they reproduce themselves faster than do the better stock, the relative numbers of such persons in the country must increase and the quality of the race deteriorate. The power of heredity is an old story, "family likeness," "family characteristics," "family temper" are expressions which convey ideas well known to us all.

Our State has been very liberal with appropriations for her institutions, and it has been hoped that by better care and treatment many of these people could be restored to health. Much has been accomplished, but we must acknowledge nevertheless that insanity has not decreased as much as could be hoped; on the contrary, there has been a gradual increase. We recognize in several varieties of insanity that heredity is the most prominent predisposing cause. According to Kraepelin 70 per cent of dementia praecox cases show its presence. In at least 60 per cent the manic-depressive type and in 65 per cent of the feeble-minded heredity is a factor. If in the study of individuals suffering from insanity we find that they are likely to propagate their kind, and that they are what they are because of their inheritance, and that they are likely to transmit to their offspring defective mentality, then is it desirable that we educate public opinion urging prohibition of parenthood in this class. It does not seem just that these people shall entail upon the next generation the burdens which the present one has borne. There is in every community a large class of individuals who, by reason of their physical and mental deficiencies, are unfitted for marriage and for the begetting of children. It may be broadly stated that no man or woman who is afflicted with either a communicable or an inheritable disease has the right to marry or beget children.

Just how far the State can go in restricting marriage and procreation is a very difficult question to answer. There are many who do not believe the State has any right to interpret these matters, and there are those who go to the other extreme and believe the State has the right to say in every case after a careful examination whether an individual should be permitted to marry or not.

Doctor Bruce Smith of Toronto well states the question: "What avails the continuous increase of hospitals, asylums, and similar institutions if the number to occupy these grows faster than the accommodations? How can we possibly leave the world better for our work if we do not at least begin some action to stop this vicious stream at its fountain head?" It seems to be the opinion of the majority that restriction of propagation is the only solution for the relief of this downward tendency, but the question is how to bring this restriction about in the proper manner. The education of public opinion has been suggested, so that those from defective parentage will, in the face of public opinion, abstain from marriage; this seems absurd, for even if marriage might be limited, which is to be questioned, it is well known that marriage is not necessary to propagation in this class. Segregation is out of the question, first from an economical standpoint, and secondly because many of these individuals would be fairly valuable citizens and be able to care for themselves if it could be so arranged that they were unable to propagate their kind. Under present conditions the State cannot take charge of those of defective mentality who have committed no crime, or who have not been committed to its care unless the same has been requested by proper authorities; but it certainly has the right to take those who have been legally committed to its charge and deal with them so that they will not be a menace to this or future generations. Indiana, Connecticut, Delaware, and Michigan have passed laws preventing marriage among defectives. Indiana, Oregon, and Connecticut have also laws providing for the sterilization of defectives. H. C. Sharp of Indianapolis, who has performed the operation known as vasectomy several hundred times, states he has never seen any bad results; on the contrary, the patient becomes more pleasant, of brighter intellect, ceases his bad habits, and frequently advises his fellows to submit to the operation for their

comfort and good. As you know, this is a simple operation occupying only a few minutes of time and a local anesthetic. It consists of ligating and resecting a small part of the vas deferens in the male; the corresponding procedure in the female, the removal of a small part of each Fallopian tube, is more difficult. These States that have taken a step forward are to be commended for their enlightened action in this direction. Pearson says: "Today we feed our criminals up, and we feed up our insane, we let both out of the prison or asylum reformed or cured, as the case may be, only after a few months to return to State supervision, leaving behind them the germs of a new generation of deteriorants."

In conclusion it seems that the only solution of this peril is a broader dissemination of knowledge, and legislation regulating marriage and permitting sterilization of the defective classes. Let us hope that our next Legislature will see the need of these laws. Selection of parentage is the only effective process known to science by which a race can continuously progress.

The Prehistoric Surgeon: Trephining by Primitive Man.

By F. D. SNYDER, M. D., F. R. G. S., Ashtabula, Ohio.

That prehistoric man did many operations whereby portions of the skull were removed has been proven by a number of skulls found in Peru, and probably trephining was one of the very first surgical operations of a serious nature undertaken.

The lowlands of Peru are arid and the rugged highlands fronting the Pacific receive but little rainfall; by reason of a combination of conditions the air and so the soil are dry nearly all the year. Accordingly, organic matter buried in the earth is preserved in a manner hardly conceivable to those accustomed to the conditions prevailing in humid lands. This condition of absence of moisture has preserved the skeletons found there in a remarkable degree.

Manuel Antonio Muniz, former Surgeon-General of the Army of Peru, traveled extensively through the land of the Incas and the Andean valleys and found many skulls that had been trephined. They showed positively that the subject had lived several years after the operation. At the World's Co-

lumbian Exposition, Doctor Muniz exhibited the trephined crania, and since then they have been examined by many scientific men and societies. The accompanying photographs give a good idea of what they are like.

Trephining is a fairly common operation in modern surgery, but it is regarded as a serious or even desperate operation and is resorted to only in grave cases. Among certain primitive people it was performed sometimes with astonishing frequency. The South Sea Islanders, when first seen by white man, were acquainted with the operation, which was per-

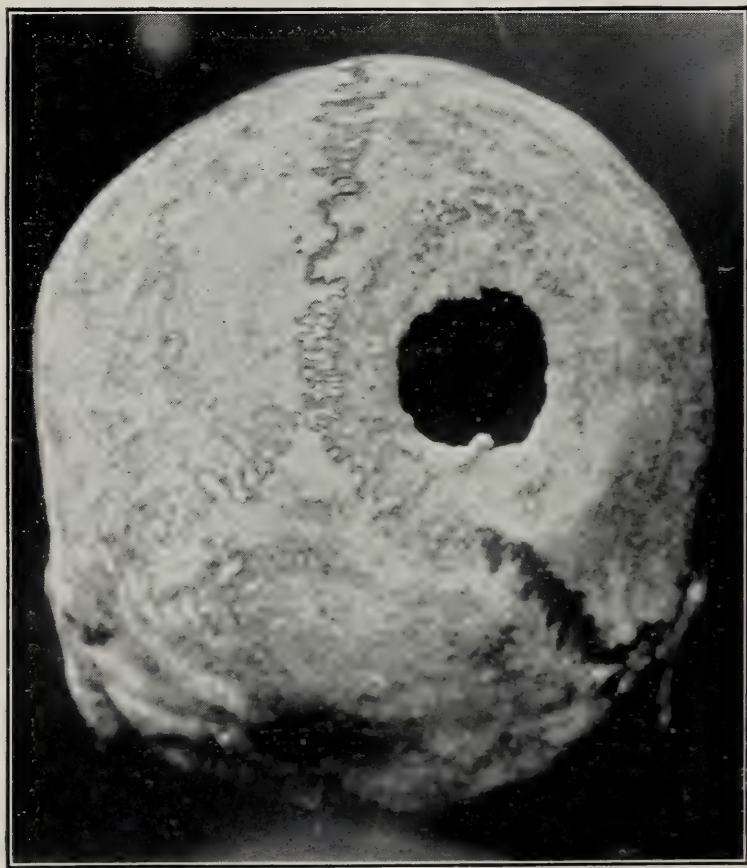


Figure 1—A perforation whose margin shows considerable new bone formation.
(From the 16th Annual Report of the U. S. Bureau of Ethnology)

formed by scraping with a flint implement or some other hard substance. The Kabyles, a nomadic tribe of Algeria, performed the operation, though rudely, and in many instances made large irregular holes; some subjects had been trephined several times. Trephining, therefore, is well known among certain savages, but it is still more interesting to think that

this surgical operation was performed in pre-Columbian Peru.

The archeologic and ethnologic records prove not merely the performance of the operation in prehistoric times and among various tribes, but indicate that with certain primitive people trephining was very common and done perhaps oftener than in many of our modern hospitals.

I have seen many of these skulls. Any surgeon knows well how injured bone will repair itself, and how it will fill in and grow over with a smooth rounded edge. In these skulls I have seen where the bone had filled in and smoothed over quite large holes, showing that the patient had lived several years after the operation (Fig. 1). In other specimens I have seen where there was but little bone growth, indicating that the subject did not live long, and probably died during the ordeal (Fig. 2).



Figure 2—A perforation which shows the severity of the operative procedure; there has been no attempt at healing.

(From the 16th Annual Report of the U. S. Bureau of Ethnology)

The history of trephining is complex, and it is not easy, from the standpoint of modern knowledge, to perceive how or why the practice was pursued in any generation before the development of scientific motive and refined methods.

Yet this operation was done by primitive man, when it must have caused intense suffering, and in many cases death. Most of the operations were performed at random, without any definite plan. The apertures seem to have been made without respect to the structures affected, and the extravagant incisions and violent elevations characterizing many of the operations necessarily rendered the artificial lesion much more extensive and dangerous than necessary.

Then again, the complete disregard for the suffering on the part of the patient, the inexpert manipulations of the operators and the unappreciation of the gravity of the operations which they were performing, would denote an ignorance of physiology and a lack of skill in diagnosis and treatment.

In every case where the marks of instrumentation are preserved they point clearly and unmistakably to the use of primitive tools, mainly stone. In some of the more refined operations the beveled margin shows, apparently, that the incising blade was held in such a manner as to produce a tapering button.

As already noted, trephining is perhaps the boldest feature of modern surgery, and it may be characterized as the only feature of modern surgery which is known to be of great antiquity. The surgeon of today, like other men, first learns how and then why to act. He scans his memory and the records of cases in the effort to find a treatment which gives promise of saving his patient; in all trephining operations he can and does weigh the risk involved. In the case of the primitive man, could he do these things also? If not, he must have worked without any knowledge of results, or without the possibility of producing any very certain benefit to the subject.

With a people who lived in a stone age, who had their wars and fought their battles with no weapons other than those of stone, and who probably had many hand to hand fights, it is natural to suppose that there were many fractured skulls. The operation may have been performed for the relief of such sufferers. What the factors were that led to the performance of the operation cannot now be determined, but that trephining was done before metal was known is proven by the skulls, showing the perforations and the results of new bone growth, that have been found.

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EDITORIAL

Truth and Commercialism.

A circular purporting to give a fair comparison of the present schemes for the obtaining of a pure water supply for the City has been lately distributed among the profession and the laity. The engineering firm issuing it is frankly concerned with one phase of the question and it is interesting to note how far the wish is father to the thought. We have fortunately two authoritative publications by a recognized sanitary engineer without commercial bias and it may be of value to compare in parallel columns the statements of the commercial and the sanitary authorities.

Commercial:

It will take at least ten years to complete the intercepting sewer according to present plans.

The cost of three such (sewage) plants and the maintenance of the same makes such a proposition entirely out of the question.

The cost of the improvements as noted above (sewage disposal and filtration), will be approximately \$15,000,000, and the cost of maintenance will be at least 10 per cent of the original cost, or \$1,000,000 a year, with no returns to pay the bonds or cost of maintenance.

Sanitary engineer employed by the City:

It is probable that four or five years will be necessary to complete the entire intercepting system as originally planned.

The original cost of construction . . . (based on costs of plants of various types elsewhere) varies from \$1,100,000 to \$7,700,000 (the latter entailing a complete purification) . . . Total annual expenses from \$170,000 to \$330,000 . . . (from report to the City).

Maximum cost of filtration plant construction, based on all Ohio plants, \$1,700,000 per 100,000,000 gallons . . . Operating costs \$2.55 per million gallons or \$255 for 100,000,000 gallons . . . In considering the cost of maintaining a filtration plant attention should be directed to the *comparatively small increase in the cost of supplying filtered water over that of supplying unfiltered water, . . . fifty cents to two dollars per person per year.*—(From *Cleveland Med. Jour.*, February, 1912).

This makes the maximum construction expense \$9,600,000 and the maximum operating expense \$424,000, with no allowance for the price paid by consumers annually.

(Parentheses and italics ours).

After this we are not surprised to read further that although the people of Cleveland think that a filtration plant would give a germ free water this opinion "*is absolutely wrong, as a filtration plant will remove none of the liquid or soluble impurities, and only a small percentage of the . . . disease producing germs, without chemical treatment before or after it has passed through the filter.*" This is of course in direct denial of the numerous published results of filtration plants where proper tests show the removal of 90 to 95 per cent of all bacteria, thereby reducing the pathogens, which are of course in a small minority anyway, to a negligible amount.

They also state that in the summer a filtration plant, unless great care is used, will become a breeding place for the pathogenic organisms, a statement of great interest in view of the widely known fact that the pathogens disappear rapidly under these conditions.

The real reason for the circular appears in the conclusion where there is recommended as a substitute for all these plans the extension of the tunnels or rather the substitution of the entire system by a set of pipes laid from the shore to about the same distance or a little more than at present. Were it not so plausible in the absence of explanation, the reason offered for the scrapping of the expensive tunnel system would be humorous. The statement that there is constant seepage of dangerous organisms through the brick walls of the tunnels thereby endangering the water supply fails to take into account, let us charitably suppose through ignorance, the interesting fact that there are over fifty feet of sand and clay above the tunnels, and that any typhoid germ which could burrow its way through this filtration layer, and still have energy to crawl through a brick wall, would deserve a special niche in the Hall of Fame. These glaring inaccuracies which have, let us say, *crept* into the circular do not lead us to the belief that the further statements as to the undoubted good quality of the water a short distance beyond the present intake should be accepted as negating previous opinions of those who really know something about it.

The Persistence of Diphtheria Bacilli in the Throat.

That the specific bacterial agent which causes a given acute disease may persist in the body of an individual after he has recovered from the disease and that such an individual is dangerous to others are facts which have become familiar enough to the physician. They are facts which he is apt to overlook, however, when the persistence occurs in a patient of his own. This is particularly true of diphtheria. This disease is one of the best examples of a self-limited disease and is one in which the cause of the limitation—the natural recovery because of the formation by the infected human body of antibodies which neutralize or overcome the toxins of the infecting organism—is best understood. Yet, in those cases in which the bacilli persist, the practitioner is prone to forget or overlook the relatively simple recovery mechanism and to expect of it more than it is supposed to do or more than it can possibly do. Cases clinically recovered from diphtheria but kept in quarantine because they continue to harbor the bacilli are annoying. They are well, they can see no reason why they should be kept from their work or

pleasure and their objection to restraint leads to dissatisfaction with the physician. The latter, in his perplexity, tends to find fault with the laboratory diagnosis or with the powers whose duty it is to maintain quarantine. As to the propriety of maintaining quarantine in such cases there can be no doubt—a single such case is considerably more dangerous than several fatally ill cases of diphtheria.

Diphtheria antitoxin, whether manufactured by the infected patient himself or whether produced experimentally in the body of a horse and later injected into the patient, cures the disease by combining with and rendering harmless the toxins produced by the bacilli. Since practically all the manifestations of the disease are due to the action of the soluble toxins, fixation of the latter leads to complete clinical recovery. The antitoxin, however, has no direct effect upon the bacilli themselves—these must be overcome by some other mechanism, by the healing of the local lesion and by the increase in the general resistance. In so far as the relationship of the bacilli and the patient is concerned antitoxin may be said to transform the former into a saprophyte harmless to the latter. Diphtheria bacilli rendered harmless to an individual recovered because he has an excess of antitoxin are not, however, harmless to others not so protected. The recovered individual, unless the bacilli are finally rendered incapable of further multiplication by changes in the tissues or by remedial measures other than the injection of antitoxin practiced by the physician, or unless he is quarantined until the bacilli have disappeared, becomes a dangerous source of infection.

Because it is believed that in the majority of cases diphtheria bacilli disappear spontaneously from the throat within a relatively short period, release from quarantine is generally permitted fourteen days after recovery. If release is to be based upon a time factor alone, this period would seem to be too short, since Graham-Smith and Cobbett in 1908 found the average time during which bacilli are present in routine cases to be 31.6 days. Lydia M. DeWitt (*Journal of Infectious Diseases*, X, 1912, 24-35) found that of 175 cases of diphtheria 63 per cent lasted less than thirty days, this duration being the period during which bacilli remained present during and after the attack; over 87 per cent lasted between fifteen and thirty-five days; only 12 per cent less than fifteen days; and 12 per cent lasted over forty days. It is just those individuals, in whom the organisms persist for a

longer time than the fourteen day quarantine period, that are most dangerous. Such cases must play an important part in the increased incidence of diphtheria which makes itself evident with the opening of the schools in the fall. They can be detected only by bacteriological examination and at least two successive negative findings should, for the sake of the public health, be required before any patient who has had diphtheria is released from quarantine. This plan would not eradicate diphtheria because it would not take into account those bacillus carriers who have never had any manifestations of the disease, but it would bring about a considerably decreased incidence. Unfortunately, release from quarantine only after two negative cultures cannot be required by local boards of health because the regulations of the State Board of Health permit the lifting of quarantine fourteen days after the disappearance of local manifestations. In spite of the loophole which is thus offered him the physician ought to feel himself morally bound not to permit the release of any patient recovered from diphtheria until the upper air passages are shown, by bacteriological examination, to be free of bacilli. He should bear in mind that diphtheria antitoxin is what the name implies, that is antitoxic and not necessarily antibacterial; that it neutralizes the soluble poisons produced by the bacilli, but does not destroy the latter; that he admits ignorance of these fundamental and relatively simple facts when he complains that a further dose of antitoxin has not caused the disappearance of the bacilli; and that local antiseptic measures may be necessary for the destruction of the organisms. Unfortunately even such measures are not always successful—in spite of the various germicidal solutions which may be applied locally the bacilli remain. Based upon the coincidence that as staphylococci increase in the throat the diphtheria bacilli decrease and the latter often seem to be finally crowded out by the former, Schiötz has recently recommended that the throat be sprayed with a pure culture of *Staphylococcus aureus* as soon as the acute manifestations have disappeared. One would hesitate to use this method until its value is more definitely established.

Almost as annoying to the practitioner as the cases in which the bacilli persist after frank attacks of the disease are the atypical, mild cases of diphtheria. In these also the physician is apt to lay aside temporarily his knowledge of the mechanism of recovery. In a case of slight atypical pharyngeal inflammation with

mild general symptoms recovery may occur within twenty-four hours—the patient may have been returned to school before the bacteriological examination shows the presence of *B. diphtheriae*. That he did not need an injection of antitoxic horse serum to bring about recovery does not mean that the patient did not have diphtheria—the rapid recovery means only that he himself produced a sufficient amount of antitoxin. Until the throat is shown to be free of bacilli he should be quarantined.

Theoretically diphtheria is absolutely preventable. Bacteriological examination of every throat and quarantine of all individuals who harbor bacilli would soon cause the disease to disappear. Such measures are impracticable; one cannot even demand bacteriological examination of every throat which is acutely inflamed. But one can properly demand that in every clinically frank case of diphtheria and in every atypical case in which the diagnosis is made in the laboratory quarantine should be maintained, not for fourteen days, but until the upper air passages are found to be free of diphtheria bacilli.

Salvarsan Accepted for "New and Nonofficial Remedies."

While salvarsan has not fulfilled the original expectations—that a single dose would be an absolute cure for syphilis—it is proving a most valuable drug and ranks with mercury and iodides in the treatment of this disease. It may therefore be asked why the Council on Pharmacy and Chemistry of the American Medical Association has deferred until now the admission of this drug to its list of "New and Nonofficial Remedies" (*Journal A. M. A.*, January 20, 1912, p. 191). That it had been submitted to the Council was stated in a report of its analysis in the Association's chemical laboratory (*Jour. A. M. A.*, December 31, 1910, p. 2314). This delay was due to the endeavors of the Council to eliminate certain very objectionable features from the exploitation of the remedy.

The advertising circulars sent out when salvarsan was first put on the American market contained statements which the Council could not endorse. Thus it contained the foolish, but also dangerous, statement that, having been tested and found of good quality, it was HARMLESS! Further, following the usual plan of proprietary exploitation of recommending a remedy for as many conditions and diseases as possible, the circular

advised the use of salvarsan in syphilis, specifying the various varieties, incipient tabes, early paralysis and epilepsy of syphilitic origin, recurrent fever, malaria, pemphigus, lichen ruber planus, frambesia, psoriasis and in disorders of the blood and nervous system where arsenical medication appears indicated. The circular now sent out with salvarsan and upon which the Council evidently agreed to accept the product no longer contains the claim of harmlessness and is less promiscuous in its recommendations. Thus it no longer recommends it in pemphigus, lichen ruber planus and psoriasis, tabes, paralysis, and diseases of the blood are also omitted. Incidentally we note that the statement claiming salvarsan to contain about 34 per cent arsenic has been eliminated and that instead a chemical formula is now given which shows salvarsan to contain 31.57 per cent of arsenic, which agrees more closely with the arsenic content found in the Association laboratory and by G. Otto Gaebel (*Apoth. Ztg.*, March 18, 1911).

Even now the circular is not ideal, for it still contains recommendations for the use of salvarsan in specific diseases. Such recommendations are out of place in trade packages which often reach the hands of the patient. The Council has taken a positive stand against this insidious method of using physicians for advertising drugs to laymen. The objection is not so serious when self-medication is altogether improbable, as in the present instance; and for this reason salvarsan will be accepted. Nevertheless, it is rather sad that a remedy of such high merit is being exploited commercially in ways which high-minded physicians cannot altogether endorse.

The Association Laboratory.

From time to time the *Journal of the American Medical Association* is forced to ask whether the propaganda for the reform of proprietary medicines undertaken by the Association is worth while, whether the actual results are such as ought to be expected from an intelligent profession or are commensurate with the work necessary for the formulation of exact reports. The tenacity with which most medical journals cling to their contracts for the advertising of substances not accepted by the Council on Pharmacy and Chemistry, the use of the long-honored name of Squibbs in the commercial exploitation of a paste which owes whatever

efficacy it may possess to the sulphuric acid contained in it and not to the radioactivity which the printed claims of the manufacturers would lead one to believe exists in the combination—these and other things *are* saddening evidences of the slow speed which reform is apparently making. But reform is a seed slow of germination and much time must elapse before its fruits are visible. A cessation of the activities of the Association for the reform of proprietaries is out of the question and the good which has already been accomplished in the rank and file of the profession must be greater than appears on the surface.

Much of the work of the Council on Pharmacy and Chemistry is of real scientific value, leaving out of consideration whatever it may do toward reformation. Certain of the investigations are undertaken solely for the purpose of exposing fraudulent claims and of showing the physician that, while it may not be easier, it is safer and cheaper to prescribe a substance under its pharmacopeial or chemical designation rather than under some trade name. Volume 4 of the Reports of the Chemical Laboratory of the American Medical Association* gives a résumé of the work done by the laboratory during 1911 under the direction of W. A. Puckner, the Secretary of the Council on Pharmacy and Chemistry. Dealing largely with chemical methods and investigations and intended primarily for pharmacists and chemists, the pamphlet of 127 pages makes enlightening and entertaining reading for the physician. From an analysis of “couldn’t-wait-until-I-got-my-hat-off” “Tiz” to an examination into the nature and chemistry of tasteless quinin or quinin tannate is a far cry. In between there is much that is informing or amusing or both. The reports of the Association laboratory and the scientific investigations carried on in the laboratories of the members of the Council on Pharmacy and Chemistry are sufficient answer to the “*Cui Bono?*” asked by the *Journal of the American Medical Association* some time ago.

The Resignation of Doctor Wiley.

The inevitable has happened—as is so frequently the case. It was not to be supposed that a man of ability and high ideals, of strength and spirit would continue indefinitely to permit himself to be annoyed, his endeavors hampered and the results of his

*Sent by the American Medical Association upon receipt of twenty-five cents.

work negated by the petty machinations of underlings acting, so far as one can judge from appearances, with the acquiescence of the administrative head of all. The Government loses an energetic and forceful worker in the resignation of Doctor Wiley, one whose ideals we would prefer to see carried out under governmental sanction. But we feel sure that the relinquishment of his official position will not lose to the people his endeavors in their behalf. Perhaps, as a private citizen unhampered by the red tape of bureaucracy, he will be able to war even more valiantly than ever against the food dopers and the drug adulterators.

In the turn that affairs have taken the Government loses more than the people. The Chief of the Bureau of Chemistry goes, but the Secretary of Agriculture remains. Pelion is piled on Ossa, to the cabal in the Bureau of Chemistry is added the Everglades scandal and an old man retains an arduous post from which he should long ago have gracefully retired. Pityable, indeed, is the spectacle of a man, who has rendered valuable service in the organization of an important department, made valueless by advanced senility. Pity, however, must not stand in the way of justice and there is a gleam of hope in the editorial statement of *Collier's*, which was so instrumental in the relegation of the now well forgotten Ballinger to his proper sphere, that "we intend to break through that network" of wires with which the present Secretary of Agriculture has defended himself. Let the good work proceed.

Phenacetin or Acetphenetidin?

In the minds of physicians the terms urotropin, adrenalin and phenacetin are associated with the substance to which they were originally applied without regard to the identity of the manufacturer. That is, physicians apply the term adrenalin to the blood-pressure raising principle of the suprarenal gland in general, without considering the fact that in commerce a single firm claims the exclusive right to use the name.

Not only do physicians use such terms as common names but lawyers who have studied the question hold that a name which becomes the common name of an article cannot be protected under the trademark law. Nevertheless druggists, to avoid criticism or legal complications, feel compelled to dispense the product of the firm which claims the word as its exclusive

right. As a result of this condition the original exploiters of many substances are still able to charge exorbitant prices—even though physicians intend to use the names of the products as generic or common names, and not as proprietary titles.

A report of the Chemical Laboratory of the American Medical Association (*Jour. A. M. A.*, March 16, 1912, p. 801) shows the effect which this peculiar condition has had on the price of the product generally known both as phenacetin and acetphenetidin. While, with the expiration of the patent, the name phenacetin as well as the product became free to competition, and while in evidence thereof one American firm has, without restraint, been for some time using the one-time proprietary name and while physicians use the name phenacetin without having in mind the proprietary article, pharmacists feel obliged to dispense the original product rather than that made by other firms and sold under the official title acetphenetidin.

As a result of all these conditions the original manufacturer of the product sells phenacetin at thirty-three cents per ounce and, without fear that the pharmacist will dare to dispense the product bearing the official title, sells acetphenetidin at about six cents per ounce. Since when selling the product under the name acetphenetidin they undersell all competitors, they should be able to practically control the market for this product, for their product will probably be dispensed both on the prescription of the physician who is careless enough to specify phenacetin and on that of the physician who uses the official title—acetphenetidin. Evidently the original owners of phenacetin "get them coming and going."

Since the report of the Association laboratory shows that the product sold as acetphenetidin is just as pure as that offered as phenacetin, physicians should, as a protest against this manipulation of the market and in consideration of their patients' pocket-books, give preference in their prescribing to the official title—acetphenetidin.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Enuresis: James Burnet, in the *International Clinics*, Vol. IV, 21st series, discusses enuresis with special reference to its causation and treatment. In pediatric practice enuresis is a very common and familiar picture. It is one which often taxes the physician's skill to the utmost in order to bring about a cure. Speaking generally, he believes that too

little attention, as a rule, is paid to the probable causation, and too much reliance is placed on routine treatment by means of belladonna. Regarding the causation of enuresis, great care must be taken to discover the etiological factor underlying the condition in every case. It is because the practitioner usually does not take time to find this out that his treatment proves so unsatisfactory in the majority of cases. To begin with, mental defects must always be excluded. Bedwetting may be a manifestation of nocturnal epilepsy. In some cases the incontinence has existed since birth, and here we have usually to do with children of neurotic disposition. Where the condition is acquired the most frequent cause by far is simple nervousness, produced it may be by inheritance, or more frequently by the strain of school life. In some cases there appears to be a definite heredity. The nervous factor is probably here the predominant one. Enuresis and night-terrors sometimes accompany each other, and in one of these cases under his observation the child was distinctly rheumatic. An examination of the urine should be made in every case, and if need be, it should be centrifuged and the deposit, so obtained, carefully submitted to microscopic investigation. As regards treatment, if the urine is at all acid treatment by alkalis is to be strongly recommended. In the ordinary nervous cases tonic treatment is best. The child should be taken away from school and sent to the country, preferably the seaside. A cold spinal douche before going to bed is often very beneficial, and this may be followed by massage with a flesh glove. No fluid should be given for two hours before the child retires to rest. Sometimes we may aid the patient by raising the foot of the bed and by seeing that he lies on his side and not in the dorsal position. As to drug treatment, he considers it quite secondary in importance. When drugs are used the best results will be obtained by giving strychnin, either alone or in combination with atropin. The latter is preferable to belladonna and certainly gives better results. Many cases, however, do well with strychnin alone, and certainly seem to be cured more rapidly than are those cases in which belladonna is given. He cured one case in three weeks, which had been under belladonna treatment for several months, by giving a teaspoonful of cod liver emulsion thrice daily, combined with spinal douching and careful dieting. Of treatment by thyroid extract, he cannot speak favorably. He has tried it in a few cases but without success; in fact, in one case the child became distinctly worse and the remedy had to be abandoned. Ergot, ergotin and chloral have been employed, and occasionally the addition of bromides may be beneficially used, especially in those cases associated with night-terrors and frightful dreams. He has had no personal experience with electricity, and is rather inclined to doubt its beneficial effect. As to the injection of saline solution into the sacral canal, he thinks that its effect is largely a psychical one. Above and beyond every other cause, the importance of school strain, especially in nervous children, must never be lost sight of; and in every case he strongly insists on complete rest from school work and, if possible, a holiday by the seaside.

Dietetics: In *Therapeutic Medicine* for November, A. L. Benedict considers the dietetic prescription, as the regulation of the diet of a patient is often and properly compared to the prescribing of drugs. Certainly it demands quite as much attention to ingredients, quantities and correct methods of preparation, and times of administration, as does the matter of medication, and much greater study and practical skill in application than is usually found. The first point in arranging a diet is to consider previous feeding and habituations in exactly the same spirit that we would inquire as to the drugs prescribed by the previous attendant, or bought at the drug store or taken by lay advice or used by a victim of actual pathologic habit. Broadly speaking the dietetic prescription is necessarily and desirably much more of the nature of a shotgun prescrip-

tion than that for rational drug therapy, and it is also much more uniform for various diseases than the latter. In most cases, especially of ambulant patients, some meat is necessary, both empirically, and to provide for the content of iron. For practical purposes we usually encounter the difficulty of giving enough meat proteids to provide for iron without increasing the proportion of iron in the diet. If we take the older standards, as of Voit, in which the ration of proteid is assumed to be about 100 grams, instead of 50, as according to Chittenden, the problem is greatly simplified. In so far as he can learn or imagine there is and can be no strictly scientific mathematic method of determining the ration needed. At any rate all estimates thus far have been determined by empiricism, the diet being gradually reduced or increased until nitrogen and weight equilibrium have been approximately secured. In regard to the dose that can be taken, a marked disparity exists between drugs and foods. The dietist in most serious acute cases is unable to get the patient to take an adequate dose of food. A very practical problem in food dosage, and yet one that can scarcely be cleared up by experiment, is the difference between the requirements of the healthy active body, the unhealthy inactive body exposed to no great vicissitudes of temperature and not seriously diseased, and the body subjected to what we conceive of as great alterations in oxidation, as in hyperpyrexia, diabetes, etc. We do not know just how far increase of oxidation in hyperpyrexia compensates for or exceeds the oxidative demands of exercise, nor what influence antipyretic measures, especially light covering in a cool room and bathing, sweating, etc., have upon the calories needed, nor how far the various febrile diseases modify the demand for proteid. All things considered, excepting in conditions in which the nutrition can obviously be disregarded for a few days, or in which there is an equally obvious indication to reduce one nutriment or another, it seems to be a safe rule to administer pretty nearly the full ration for pretty nearly every disease if we can do so.

Tetanus: Pearce Kintzing, in the *New York Medical Journal* of December 23rd, reports the treatment of tetanus by a method which has given seven consecutive recoveries. While ordinarily such results might offer little evidence of the efficiency of any special line of treatment, yet in a disease with so high a death rate as that of tetanus such recoveries would rather indicate more than mere coincidence. The remedy employed was a solution of pure phenol of ten per cent strength, made by dissolving the deliquesced crystals in sterile water. This solution was then diluted to suit the case, generally to thirty or forty minims, and administered by hypodermic injections deep into the muscles; the dose being repeated at intervals of three hours, in the beginning, increasing the interval as the improvement manifests itself. The full adult dose employed was ten drops of this ten per cent solution, equaling practically one grain of pure crystallized phenol. As a precaution against soreness or suppuration he has sometimes diluted with sterile water half the stated amount, five drops, to the capacity of a twenty-five or thirty minim syringe, injected this into one buttock, following immediately with the remainder of the dose into the opposite buttock. The succeeding injections may be made into the deltoids or the pectoral muscles, if deemed advisable. However, when the entire dose, properly diluted, (i. e. to forty minims), has been given in a single injection he has seen no bad results follow. The dose employed in the second case was five minims; in the sixth case, three and one-half minims, which was afterwards increased to five minims. In fully developed cases the second dose is administered one hour after the first, the third being given after the lapse already stated. The urine is carefully watched and if the characteristic smoky color develops strongly he considers it a signal for temporary cessation of the injections, but up to this time he has never been obliged

to withdraw the remedy either for this or any other contraindication. Naturally the original wound should be excised, or cauterized with strong solutions of carbolic acid, of silver nitrate or by nitric acid, all of which he has used. While treating these cases two patients with tetanus were treated on the surgical side of the hospital with antitoxin and both perished. His fifth case was first treated with antitoxin without perceptible improvement; when seemingly he was in a fair way to succumb, the treatment was changed to phenol, whereupon the improvement was very prompt and the ultimate outcome, recovery. In all of the cases the disease was more or less protracted, the convulsions generally continuing some ten days. Sometimes the improvement was very marked after the third or fourth dose in that the number of attacks was lessened and their duration shortened. The first published advocacy of carbolic acid as a remedy in tetanus so far as I am aware, was by Baccelli in 1892, who advocated fifteen minim (one c. cm.) doses of a one per cent solution. He believes Baccelli's solution to be too weak, and he states that no untoward effects have followed the use of the ten per cent solution. One thing impressed him, that where sedatives were used comparatively small doses sufficed, whereas in general tetanus, treated by other remedies, enormous doses sometimes fail to make any great impression. He believes the remedy will be found useful in conditions other than tetanus, as meningitis and possibly in acute rheumatic fever. He has been much impressed with its usefulness in diphtheria in those cases where he has tried it.

Morphin Habit: In *Merck's Archives* for December, C. W. R. von Radesky outlines his treatment of morphinomania. He believes that while the hyoscin treatment will cure the malady, yet it is far from being a safe or simple or permanent cure, for patients thrown on their own resources in this state of nervous collapse are very apt to revert to their former panacea, and the returning devil is stronger than the one cast out. The treatment which he has found invariably to produce pleasant, prompt and permanent results is the gradual substitution of dionin (ethyl morphin hydrochlorid) for the morphin, and the administration of veronal as a sedative. Dionin does not produce a habit, and may itself be easily gradually withdrawn as the treatment progresses. As to the use of veronal, he continues that all careful observers are agreed that in veronal we have one of the most efficient and reliable hypnotics and sedatives at our command. The sleep produced by it closely resembles the normal; it is free from depressing influence upon the heart or respiration, and in cases of alcoholism or morphinomania, where we have the moving picture sensation, it promptly relieves the congested brain. The motion pictures fade, and perfect quiet ensues, followed by deep restful sleep lasting, after an average dose of about eight grains, for six to ten hours, provided the patient is not disturbed. As it is well known that elimination in a morphin habitue is extremely poor and slow, and as shown, veronal-sodium increases rapid elimination of nerve cell contents, it becomes evident that veronal, aside from its hypnotic action, aids the system in getting rid of its accumulated toxin. In patients under his care who usually required from two to three hypodermics of morphin during the night, he has given one hypodermic of veronal-sodium, eight grains in the areolar tissue of the chest at bedtime, with the result that within thirty to forty minutes the patient was sleeping soundly until nine a. m. next day, thus saving three injections of morphin. All danger, if such really exists from repeated dosage, can be averted if the patient will take a good saline next morning before breakfast. If a prolonged action of the drug seems desirable give it by mouth rather late at night, with but a small amount of water; the drowsiness will persist for from twelve to eighteen hours. During this time sleep is induced in morphin habitues with less than one-half the usual dose. The elim-

ination of veronal-sodium is completed in from eight to fourteen hours, while from three to four days are required to eliminate veronal completely after a single dose.

Arteriosclerosis: William Francis Waugh, in the *Medical Record* for September 23rd, states concerning arteriosclerosis that the first general cause we find is that decline in the sensibility and the motor power of the colon, incident to advancing age. Fecal matter collects in the large bowel, and is retained beyond the normal period. Toxins are developed which are absorbed into the blood where they irritate the walls of the vessels through which they circulate. Senile pruritus is invariably dependent on fecal toxemia, and if affecting the anal region it attends acidity and pyrosis. The treatment is deducible from the etiology. Keep up the activity of the large bowel. Study in each case the effect of various remedies for this purpose and suit the individual peculiarities. Aloin acts most powerfully on the rectum. Cascara on this and the descending colon. Senna on the cecum and ascending colon. The latter drug wears out, if continued, sooner than either of the others. A morning dose of saline laxative, as sodium sulphate or phosphate, a scruple of either in a glass of water on rising will often suffice. But a daily evacuation does not mean an emptied bowel, and the indican test should be employed regularly. Nearly everybody who believes in the value of drugs in treating arteriosclerosis recommends some form of iodine. Personally his best results have followed the use of arsenic iodid in doses of a milligram before meals and at bedtime increased to seven daily doses, or until irritation of the eyelids betokens the beginning of toxic action and then held as closely as possible to that point without quite touching it. This treatment has been maintained for six, twelve and eighteen months with very satisfactory results. When vascular tension is marked veratrin offers advantages to be secured from no other remedy. By its judicious use the arterial tension may be moderated at will and maintained at the normal point for months or years without a trace of harm immediate or remote. It is not a mere symptom remedy, for while thus controlling the vascular tension it is stimulating all the eliminants to excrete the toxins that are working the evil. No form of nitrites is suitable for such continuous relaxation. Their place is where quick and brief effects are desired. The textbook dosage of veratrin is erroneous because it was not fixed by those who had had wide experience in the internal use of this remedy. Of the pure alkaloid veratrin, the average adult dose is half a milligram given in at least two ounces of water and repeated every one to four hours until the desired effect is produced. The dose thus ascertained may be divided into three portions and taken in the usual way after meals. The advantages of this remedy are its uniform and certain effect, easily maintained, and its absolute safety since under no circumstances can harm occur when it is administered as here suggested. It provides its own elimination so that remote ills or cumulative perils are impossible.

The Salicylates: In the December number of *Therapeutic Gazette (Clinical Journal)*, Voelcker asks concerning the salicylates in rheumatism, "Do the salicylates control the occurrence of these manifestations of rheumatism?" Every one of us has seen either endocarditis or pericarditis or both conditions develop in the course of rheumatism while patients have been under the salicylates, and he thinks we may also say that we have also congratulated ourselves that by our putting our patients on salicylates they have escaped the incidence of these complications. Whether we are justified in our self-congratulation is another question. How often we see pericarditis developing in patients who are well under the influence of salicylates. While he has failed to recognize

a beneficial effect on pericarditis from the use of the salicylates, he is equally convinced that the local application of the oil of wintergreen has a decidedly good effect in relieving the pain of pericarditis, a result he has not seen follow the use of salicylates. With regard to the influence of the salicylates on rheumatic carditis, he is not prepared to say that the salicylates are not useful, but it is very difficult to distinguish the good effects of rest and local applications, be they ice bags or hot fomentations, from the effects produced by the salicylates. As to chorea, he has tried in the past twenty-two years a considerable number of drugs in its treatment, but among them all does not think that he has found any less satisfactory than the salicylates. It would seem that the salicylates have been roped into the list of remedies for chorea on theoretical grounds, and that it is only by reason of a preconceived notion that they ought to be efficacious that their employment is still persisted in. He states that the object of his paper is not to belittle the good effects which the salicylates exercise on many rheumatic affections, but to point out that we are not justified in regarding the salicylates as the specific for any and every kind of rheumatic affection and that by recognizing what limitations there are to the successful employment of the drug we may be led to search for medicaments and measures which shall prove as brilliantly successful in the treatment of conditions untouched by the salicylates as the salicylates have proved themselves to be in some, and only some, of the affections termed "rheumatic."

Vaccine Therapy: John H. Mudgett, in the *Medical Council* for January, writes concerning vaccine therapy that the use of bacterial vaccines as therapeutic agents is in harmony with nature's efforts to cure, and he writes to impress upon the practitioner the advantage of using bacterial vaccines as accessory treatment. It is quite remarkable to note the change of attitude of those using vaccines in relation to the employment of so-called autogenous vaccines. Wright and his followers in Europe are now all using stock vaccines, and never think of using an autogenous vaccine unless the stock vaccine has failed. He also observes on the necessity of following Wright's directions in regard to accessory treatment. He emphasizes the ease and facility with which bacterial vaccines may be used by the general practitioner, and believes that the use of bacterial vaccines is as safe as the employment of any of the potent drugs of the materia medica. Cases of rheumatism that persist in spite of salicylates and other ordinary treatment are often due to a mixed infection, and many times a few injections of a mixed vaccine will cause the patient to at once improve and go on to a speedy convalescence. He would not think of treating a case of pneumonia without the aid of vaccines. He summarizes: First, the bacterial vaccines are not dangerous if employed with the same care and judgment that a physician should use in the administration of any drug in the pharmacopeia. Second, the bacterial vaccines are used with facility, as not one case of abscess has developed. Third, as to cost: if purchased in the regular way on the market, the cost is about twenty-five cents per dozen; if the physician has a large practice he can buy the twenty c. cm. bottles and fill his own syringes to carry with him, which brings the average cost for each injection down to eight or ten cents. Fourth, that a physician has not done his full duty by his patient unless he has used the bacterial vaccines in conjunction with other methods of treatment.

Review of the Progress of Medicine.

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Experimental Measles.

A series of articles by Goldberger and Anderson has appeared during the last year in the *Public Health Reports* of the Public Health and

Marine Hospital Service and in the *Journal of the American Medical Association* in regard to the experimental inoculation of measles in monkeys. The data obtained were more definite than anything previously reported, although inoculation experiments were done as long ago as 1758. At this early date Home is reported to have produced measles in a child by inoculating it, through a small cut in the arm, with blood obtained, through a similar cut, from another child in the early eruptive stage of the disease. Similar experiments with nasal secretion failed. Following Home, a number of experimenters failed to reproduce the disease and conflicting experimental results have been reported ever since. One fact was clear apparently as early as 1852, namely, that the period of greatest infectivity was at the onset of the eruption.

The occurrence of genuine measles in animals has also been a moot point. The disease was described in full in a work on veterinary medicine, by Spinola, in 1863. This was disputed later, however, on the ground that several exanthemata were confused. In 1896 Behla attempted to produce measles in animals experimentally. He used the fresh, warm nasal secretion of a child with measles, transferring it directly to the nasal mucous membrane of a rabbit, guinea pig, cat, dog, mouse and lamb. In some cases there followed after several days increased nasal secretion, reddening of the eyes and throat and some loss of appetite and a general sick appearance. In no instance, however, was there a typical eruption. In another series of experiments on very young pigs, which Behla considered were better adapted to the study of skin manifestations, a very striking reproduction of measles was observed. On the eighth day after inoculation there appeared signs of a general infection with fever and a characteristic eruption, beginning upon the snout, face and ears and extending over the whole body. This was followed by a typical desquamation. The pig was brought in contact with two grown pigs during the active stage of the disease. The latter developed, in the second week following, the same signs, with a bright red eruption first appearing on the snout and followed by desquamation. Behla also described a motile organism 0.5 to 3.0 micra in length occurring in the blood and nasal secretions. In 1910, Ciaccio, following a severe epidemic of measles, made an extensive postmortem study of the lesions occurring in the internal organs of children who had died directly from the infection of measles. He also described an organism, a large bacillus 5 to 7 micra in length, occurring in the lymph glands, liver, adrenal glands and thymus as well as on the affected mucous membranes.

The experiments of Goldberger and Anderson were carried out on the rhesus monkey. Blood was obtained from children in the early eruptive stage of measles. The defibrinated blood, serum and washed corpuscles were used in different experiments for inoculation, which was also done in several ways—by intraperitoneal, subcutaneous and intracerebral injection. All methods succeeded. After an incubation of about ten days a febrile reaction occurred, followed by a papular or maculopapular eruption. Sometimes the reaction occurred as early as the fifth day, but never earlier. Experiments conducted in the same way with blood from the infected monkeys produced the same febrile reaction and exanthem in other monkeys in about half the cases. In later experiments (May 16 to June 29, 1911) Goldberger and Anderson carried the virus through six generations of monkeys without any definite alteration in the virulence of the disease. Second inoculations in the same animals failed. Tests were made with blood obtained from the human patient during different stages of the disease with the result that the period of infectivity was found to extend from just before the eruption to about twenty-four hours after its appearance. Hektoen (1905) had shown this period to extend to about thirty hours after the appearance of the rash in man, but man has a greater susceptibility to measles than the monkey. The blood samples used never showed a growth in glucose broth fermentation tubes.

Transmission of measles directly from one monkey to another was observed by simply caging the infected animal with healthy ones, the latter presenting after the usual incubation period the same febrile reaction and rash. This suggests of course the infectiousness of the nasal and buccal secretions. Goldberger and Anderson carried out a series of experiments, similar to those made with blood inoculations, by subcutaneous injections of buccal and nasal secretions. Quite similar results were obtained. Local abscesses frequently resulted, but usually discharged and healed before the eruption appeared. It was found, however, that the virus persisted longer in these secretions than in the blood—as late as forty-eight hours after the appearance of the rash, or about the sixth day of the disease.

Inoculations of epidermal scales obtained during convalescence and injected subcutaneously or swabbed on the nasal mucous membrane of monkeys were negative.

Goldberger and Anderson in their last report state a few facts based on further experiments as to the nature of the virus of measles: (1) It may pass through a Berkefeld filter. (2) It resists desiccation for twenty-five and one-half hours. (3) It loses its infectivity after being heated to 55° C. for fifteen minutes. (4) It resists freezing for twenty-five hours. (5) It retains its infectivity in some degree after being kept at a temperature of 15° C. for twenty-four hours.

The seriousness of the occasional case of measles is a well recognized fact. In the *London Public Health Report* (1910) statistics were quoted to show that the total mortality of children under five years of age was greater from measles than that from scarlet fever and diphtheria combined under five years of age. Consequently scientific knowledge as to the nature of the infection of measles is very desirable and not without practical value.

New and Nonofficial Remedies.

Since the publication of *New and Nonofficial Remedies*, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Neisser Bacterin Mixed, a gonococcus vaccine, each Cc. being said to contain approximately 100 million each of killed *Staphylococcus (aureus, albus and citreus)* and 50 million each of streptococci, *B. coli*, *B. pseudo-diphtheriae* and gonococci. It is marketed in packages of four 1 Cc. ampules. Also marketed in vials of 20 Cc. and in four syringes, Syringe A being of the composition mentioned above and constituting the initial dose, while Syringes B, C and D contain, respectively, two, four and eight times the amount of bacteria contained in Syringe A. H. K. Mulford Co., Philadelphia, (*Jour. A. M. A.*, Feb. 3, 1912, page 343).

Pneumo-Bacterin Mixed, a pneumococcus vaccine, each Cc. being said to contain 50 million killed pneumococci, 25 million killed streptococci and 50 million killed staphylococci. Also marketed in vials of 20 Cc. and in packages of four syringes, Syringe A being of the composition mentioned above and constituting the initial dose, while Syringes B, C and D contain, respectively, two, four and eight times the amount of bacteria contained in Syringe A. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, Feb. 3, 1912, p. 343).

Scarlatina-Bacterin (Scarlet Fever Vaccine), a streptococcus vaccine, consisting of a suspension of killed streptococci obtained from scarlet fever cases. Marketed in packages of four syringes, Syringe A containing 50 million killed streptococci, while Syringes B, C and D contain, respectively, two, four and eight times the amounts of bacterin contained in Syringe A. It is also marketed for immunizing purposes in packages

containing three doses ready for use and sufficient to immunize one person. Also in 20 Cc. vials, sufficient for immunizing five persons. H. K. Mulford Co., Philadelphia (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Typho-Bacterin Immunizing, a typhoid vaccine, marketed in packages containing three syringes; the contents to be injected subcutaneously at intervals of ten days. Hospital-size packages contain 30 ampules, in sets of three. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Staphylo-Bacterin Mixed, a staphylococcus vaccine, composed of a suspension, each Cc. containing 25 million killed streptococci, 100 million killed staphylococci and 50 million killed *B. coli*. It is marketed in packages of four 1 Cc. ampules. Also in 20 Cc. vials and in packages of four syringes, Syringe A being of the composition given above, while Syringes B, C and D contain, respectively, two, four and eight times the amount of bacteria contained in Syringe A. H. K. Mulford Co., Philadelphia, (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Von Pirquet Test for Tuberculosis consists of old tuberculin in capillary tubes. Each tube contains old tuberculin sufficient for one test. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Rabies vaccine is an antirabic vaccine prepared according to the method of Pasteur. It is a complete treatment, consisting of twenty-five doses to be administered during twenty-one days. Each day's injection is shipped in a Caloris vacuum bottle. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Bass Test for Typhoid Fever is a modification of the method of Widal consisting of a suspension or emulsion of killed typhoid bacilli, a glass slide on which to mix the emulsion with suspected blood, a slide with a dried smear of infected blood, a needle for pricking the ear or finger to obtain suspected blood from the patient and a pipette for dropping typhoid emulsion and water on the slide, previous to mixing with suspected blood. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Mulford's Widal Test Outfit is a means of applying Borden's modification of Widal's Test. In this test the serum of the blood is mixed with salt solution and then with a suspension of killed typhoid bacilli, so as to bring the dilution up to 1 to 50. The positive reaction is determined by noting that the clumps of bacteria sink to the bottom of the test tube and leave a limpid, clear fluid above a small, white, flocculent mass of agglutinated bacilli. H. K. Mulford Co., Philadelphia. (*Jour. A. M. A., Feb. 3, 1912, p. 343*).

Gynoval is isoborneol isovalerate. It is closely related to bornyval (see *N. N. R.*, 1912, p. 49). It is difficultly soluble in water. The action of gynoval is said to be that of a mild nervine and antispasmodic, resembling that of valerian, with the advantages of a much more agreeable odor and of being better tolerated, especially not giving rise to unpleasant eructations. Like other valerian preparations, it is said to be indicated in nervous headaches, nervous insomnia, nervous disorders of the climacteric, hysteria, cardiac and gastric neuroses and neurasthenia. 0.25 to 0.50 Gm. (4 to 8 grains) two to four times daily, best given after meals. Gynoval is marketed in the form of gynoval pearls, containing 0.25 Gm. (4 grains) gynoval. Farbenfabriken of Elberfeld Co., New York. (*Jour. A. M. A., Feb. 10, 1912, p. 411*).

Exsiccated sodium succinate (Sodii Succinas, Exsiccatus) is the disodium salt of succinic acid containing not less than 95 per cent anhydrous sodium succinate. It is a white granular odorless powder, possessing a characteristic saline taste. It is readily soluble in water, but insoluble in alcohol, ether and chloroform. It is a saline cathartic claimed by some to have an antiseptic action in the biliary tract and to be useful in com-

bating infections of the gall bladder and biliary passages. Dose, 0.3 Gm. (5 grains) three or four times a day. Manufactured by Fairchild Bros. & Foster, New York, and by Merck & Co., New York. (*Jour. A. M. A., Feb. 24, 1912, p. 554*).

The following have also been accepted:

Tablets Oxyntin with Pepsin, Fairchild Bros. & Foster.

Capsules Oxyntin with Nux Vomica, Fairchild Bros. & Foster.

Cornutol, H. K. Mulford Co.

Ampules Cornutol, H. K. Mulford Co.

Digitol, H. K. Mulford Co.

Atophan, Schering & Glatz.

Atophan Tablets, Schering & Glatz.

The following is a list of the articles whose acceptance has been rescinded during the past year and which therefore are not contained in New and Nonofficial Remedies, 1912:

E. G. Binz Co.: Eucaloids, Euca-Mul.

Henry C. Blair Co.: Iodone, Iodone Oil, Iodone Ointment, Iodone Surgical Dressing and Dusting Powder.

Burroughs, Wellcome & Co.: Tabloid Ergotinin Citrate and Strychnin Sulphate, Tabloid Hypophosphites Comp.

G. W. Carnrick Co.: Antithermoline.

Cloftlin Chemical Co.: Emulsion Cloftlin.

Eusoma Pharmacal Co.: Mercuran.

Victor Koechl & Co.: Hypnal, Tussol.

Merck & Co.: Cupro-Hemol, Ichthermol, Lithium Ichthyol.

Wm. S. Merrell Chemical Co.: Akaralgia, Erpiol-Dr. Schrader.

H. K. Mulford Co.: Adrin, Adrin Compound Vaginoids, Adrin Inhalant Comp., Adrin Troches, Adrin Ointment, Adrin Solution 1:500, Adrin Suppositories, Adrin Tablets 1-65 gr., Adrin Tablets Hypodermic 1-100 gr., Adrin Tablets Hypodermic 1-200 gr., Adrin and Cocain Tablets, Adrin and Spartein Tablets Hypodermic, Blandine Comp., Casca-Laxative, Compound Capsules of Glycerophosphates, Granular Effervescent Carlsbad Salt (Artificial) with Phenolphthalein, Guaiacol Carbonate Comp., Tuberculin Ophthalmic Test Solution, Tuberculin Ophthalmic Test Tablets.

Reinschild Chemical Co.: Regulin.

Schering & Glatz: Exodin, Tonols, Duotonol, Quartonol, Sextonol.

Schieffelin & Co.: Colalin Laxative, Elixir Eupnein, Hemoquinin, Heromal, Heroterpine, Laminoids Ferruginous (Nascent), Neuronidia, Uniform.

Sharp & Dohme: Compressed Tablets Anethesin, 2½ grs., Solution Atoxyl 10 per cent (sterilized), Ampules Solution Atoxyl 10 per cent (sterilized), Ampule Solution Atoxyl 10 per cent with Novocain 1 per cent (sterilized), Compressed Tablets Atoxyl and Iron, Compressed Tablets Atoxyl and Quinine Comp., Compressed Tablets Benzosol 2½ grs., Compressed Tablets Benzosol and Codein, Compressed Tablets Blaud with Atoxyl, Compressed Tablets Pyramidon 1½ grs., Compressed Lozenges Orthoform 1 gr., Compound Emulsion Petroleum, Solution Atoxyl 10 per cent with Novocain 1 per cent (sterilized), Soluble Hypodermic Tablets Atoxyl 1-3 gr., Soluble Hypodermic Tablets Novocain 1-3 gr., Soluble Tablets Novocain 1 1-7 grs., Tonic Hypophosphites.

F. H. Strong Co.: Chologestin.

H. K. Wampole Co.: Bismuth Hydrate Comp.

Nonproprietary preparations: Barium chlorid, Cephaelin, Coniin Hydrobromid, Digitonin, Emetin Hydrochlorid, Gelsemin Hydrochlorid, Hemoglobin, Keratin, Quassin, Red Gum, Sanguinarin Nitrate, Sodium Cinnamate, Thorium Nitrate.

Academy of Medicine of Cleveland.**ACADEMY MEETING.**

The eighty-ninth regular meeting of the Academy was held in conjunction with the Medico-Pharmaceutical Section at the Cleveland Medical Library on February 16, 1912, the President, J. V. Gallagher, in the chair.

The Secretary read the report of the Committee on Dispensary Abuse and Contract Medical Practice, dealing with the control of dispensary abuse (published in full on page 126 of the February issue).

The regular program of the Academy was a paper upon the "Causes and Control of Insanity" by A. G. Hyde of the Cleveland State Hospital for the Insane (published in full on page 195).

W. B. Laffer, in discussion, complimented the speaker for the thoroughness with which he had covered the ground; the paper was timely because it is important that interest be awakened in the points discussed.

J. S. Tierney congratulated the speaker but feared that he entertained rather optimistic ideals in regard to the amount of control that might be exercised through enactments by the State Legislature. In Ohio it is a matter of very great regret that none of the State Institutions are doing any work of an investigational character, a condition due to lack of interest and to actual obstruction upon the part of the Legislature. There is no incentive and no equipment for investigational work. In regard to the relation of alcohol to insanity he had been interested to find in a visit to Kraeplin's clinic that a placard at the entrance places alcohol at the head of the list of the causes of insanity. Kraeplin himself is a firm believer in the causation of insanity by alcohol and permits no lecture period to pass without emphasizing the point. In Vienna and Buda Pesth a similar state of affairs exists and a strong antialcohol propaganda is in progress.

J. E. Tuckerman said that an important point brought out by the speaker was the increase in the number of the insane due to the increase in the general longevity and in the longevity of the insane. If the State must take care of its insane it ought to have the right to say whether those with a mental taint shall be permitted to reproduce.

A. G. Hyde, in closing, said that at the Cleveland State Hospital as much work as possible of an investigational nature had been done. There was not sufficient state support for this work and such investigations as had been undertaken, chiefly the making of the Wassermann test and the examination of spinal fluid, were possible through the help of one or two members of the local profession. The chief point that he wished to make in presenting the paper was to call attention to the marked increase in insanity, an increase out of all proportion to the growth in population, and to insist that the Legislature ought to authorize more drastic measures for the control of the disease.

The program under the auspices of the Medico-Pharmaceutical Section, the Chairman, Lewis C. Hopp, in the chair, consisted of a discussion of "The Relations Which Should Exist Between Medicine and Legitimate Pharmacy," by J. H. Beal, General Secretary of the American Pharmaceutical Association and Editor of the *Journal of the American Pharmaceutical Association*.

By the medical profession the pharmaceutical profession is accused of unprofessional and unethical conduct in the foisting of nostrums; the pharmacist retorts that the physician, when he prescribes a medicine of which he does not know the contents, is as bad as the layman who drugs himself with patent medicines. Such contentions have arisen, not from the attitude of either profession as a whole, but from the driftwood in both. The well-trained physician appreciates the services of a well-trained pharmacist, and every proper pharmacist realizes that his function is the preparation of such medicines as are prescribed by the physi-

cian. But there is a common zone at which the two professions overlap, an absolutely sharp line of demarcation between the two is not possible. The physician must do a certain amount of dispensing and the pharmacist must be permitted to sell such simple household remedies as his customers wish, provided he does not attempt to diagnose. In both professions there are members who are not strictly ethical, and attempts have been made to control such. Attempts to regulate and define the two professions should not come from the medical profession alone or from the pharmaceutical profession alone, but from the conjoint action of both professions. For the beginning of such action there is to be a meeting soon of a committee from the American Pharmaceutical Association with one from the American Medical Association.

The greatest enemy to both professions is the patent medicine maker. The pharmacist is under great difficulties when he tries to dissuade a customer from the purchase of a patent medicine. He is accused of substitution—the accusation of this crime coming from the patent medicine people. Before the doctor or pharmacist can practice his respective profession he must have undergone a prescribed course of training and must have passed an examination. The national nostrum maker is not so controlled; he is permitted to diagnose and prescribe, not only in a single state but throughout the entire country, without regulation; he is above and beyond the law. No pharmacist wishes to deal in patent medicines; even the unethical druggist has no love for the nostrum because it does not offer enough profit when he must meet the prices that the department stores are permitted to make. The strength of the patent medicine makers is evidenced by the ease with which a fund was raised for the defeat of the Itinerant Vendor's Bill recently before the Ohio Legislature. The medical and pharmaceutical professions owe it to the public and to their respective vocations to join hands in the attempt to extinguish the patent medicine frauds. The laws should be so amended that all the burdens are not upon the physician or pharmacist who conducts himself properly; some should be placed upon the frauds and charlatans. Most physicians do not realize that for sixty years the American Pharmaceutical Association has stood for what is clean and best and that it has never compromised with this attitude. For years the third rule of censorship has prevented the acceptance by the Journal of the Association of advertisements of patent medicines, of substances advertised directly to the laity and of medicines which lead to self-drugging. Ready-made medicines must be gotten rid of entirely, but so long as they are permitted and so long as there is a demand for proprietary medicines the pharmacist must be permitted to sell them. This condition must be tolerated by the pharmacist until better conditions can be brought about by education, by legislation and by the united action of the two professions. The American Pharmaceutical Association is in entire accord with the medical profession in attempting to clean the Augean stables and in bringing about in the lay mind a condition inimical to self-drugging.

J. V. Gallagher, in opening the discussion, said that he had been much interested by the speaker's remarks and had been convinced by them that the blame for the patent medicine evil rests not so much with the druggist as with the newspapers and the gullibility of the laity. If newspaper advertisements could be controlled and if the patent medicines themselves could be examined and their testimonials investigated, a ban would be put upon the business.

L. G. Hopp said that the newspapers have assisted largely in the sale of patent medicines. Some twelve or fifteen years ago the Ohio Pharmaceutical Society presented to the Legislature a bill which required that every medicine must state the amount of narcotics per teaspoon dose contained in it. The measure was universally fought by the papers of the state.

Officers of the Medico-Pharmaceutical Section for the year were elected as follows: Chairman, J. B. McGee; Secretary, T. Bernard Tanner.

CLINICAL AND PATHOLOGICAL SECTION.

The eighty-third regular meeting of this section was held at the Cleveland Medical Library on February 2, 1912, the Chairman, H. L. Sanford, in the chair.

E. O. Houck presented the placenta from a case of placenta praevia. The membranes were intact, the child having been delivered by version through a rent in the placenta.

C. W. Wille demonstrated a gravity apparatus for administering salvarsan. The apparatus is simple, consisting of three parts: a vacuum burette which maintains the fluid at a constant temperature, the conducting tube with a thermometer and the injecting needle. The solution is placed in the burette at a temperature of about 120°, reaching the vein at about 105°. W. H. Merriam asked as to adequate sterilization of the apparatus. C. W. Wille said that he had not tested the matter of sterilization experimentally, but in actual use no difficulties had been encountered. The burette is kept sterile by keeping alcohol in it when not in use. Formalin might be used for sterilization, to be followed by alcohol immediately before use. The connecting tube and the needle are readily sterilized by boiling.

The program was as follows:

1. O. T. Schultz discussed the Pathological History of Visceral Syphilis. The histology and the pathogenesis of the gumma, the diffuse interstitial inflammatory process and the vascular involvement were illustrated by means of lantern slides (to be published later).

2. Richard Dexter: The Relation of Syphilis to Certain Diseases of the Heart and Aorta. The type of mesaortitis with which Chiari's name is associated usually occurs at the root of the aorta, although in some cases most of the vessel may show change. The aorta is pitted and scarred, with usually little calcification; some rubbery elasticity is retained. Histologically the process is one of degeneration of the media and intima, with secondary proliferative change. In most cases the aortic valves are also involved. Longcope has shown that a very large percentage of cases of aortic disease and of aortic valve disease give positive Wassermann reactions. Dexter reported the results of a study of forty-three cases, in which it was attempted to correlate the findings obtained by the serum reaction, the X-ray and the physical examination. A definite history of lues was obtained in very few of the patients, a probable history in a few more. Nineteen complained of rheumatism-like symptoms; of these fourteen gave positive Wassermann reactions. In twenty-four cases with positive serum reactions the presence of aortic disease was confirmed by the X-ray or by the clinical signs. The reaction was positive in one case of abdominal aneurysm. In two cases with negative reactions the pathological involvement was limited to the aortic valves, without aortic disease. From the study it was concluded that disease of the aorta, of the aorta and aortic valves combined, or of the aortic valves alone is presumptive evidence of the luetic nature of the condition and thorough examination and treatment should be made with this possibility in view. Especially if the Wasserman reaction is positive specific treatment should be actively pushed in order that healing might be obtained before the aorta became too severely injured by the disease.

3. C. F. Hoover discussed Some Manifestations of Visceral Syphilis: (a), Albuminuria in Syphilitics. Nephritic manifestations may come at almost any stage of the disease—while the chancre is still present or as long as forty years after the primary lesion. In a case of long standing

undoubted syphilis the patient developed a heavy albuminuria, with very few renal elements in the urine; there was no edema. The condition cleared up under treatment. In a case of suspected syphilis the disproportion between the amount of albumin and the number of renal elements must make one think of luetic nephritis, especially when the condition develops after the earlier stages of the disease.

(b), Syphilitic Fevers. Syphilitic fever may simulate almost any variety of fever. It may be low and continuous; in other cases it is of the septic type, high temperature being followed by sudden remissions. The striking characteristic of syphilitic fever of any type is the promptness with which the temperature subsides after the administration of mercury; within twelve or twenty-four hours, or within seventy hours at the longest, the temperature returns to normal. The fever may simulate malaria, with chills, fever and sweats. An unusual form of fever was illustrated by a woman married sixteen years, during the latter fourteen years of which period she had never gone a single whole week without a period of twenty-four to forty-eight hours of fever. The heart was enlarged, there was sclerosis of the larger arteries and the liver and spleen were enlarged. Mercury caused a disappearance of the fever, of which the patient has remained free during the past four years; she appears now clinically normal as to heart, liver and spleen. Three cases of central nervous system syphilis were associated with fever, which is contrary to the conclusion of most observers that this form of lues is not accompanied by fever; the fever and other symptoms may simulate meningitis; all the symptoms subsided after the administration of mercury. A fairly high degree of fever may be present without subjective symptoms; in a woman with a luetic history but with no active signs of syphilis there was a daily fever up to 103°, but the patient was comfortable and did not know that she had fever; the fever disappeared after mercury. The essential points in the syphilitic fevers are the simulation of any type of fever and the rapid subsidence of the temperature after mercury.

(c), Ascites of Hepatic Origin in Syphilis. It is sometimes found that in patients who have had vigorous treatment the condition of the liver apparently improves but the ascites persists. In such cases there is disease of the portal vein, syphilitic pylephlebitis, which leads to obstruction of the vein. The syphilis may be cured but the involvement of the vein cannot be overcome. Ascites may be due to diffuse interstitial luetic hepatitis, without involvement of the portal vein. Experimental evidence is against the generally accepted view that in such cases the ascites is due to a mechanical interference with the portal circulation; experimentally, obstruction leading to much higher pressures in the portal system than occur in cirrhosis of the liver is not followed by ascites. Possibly the explanation must be sought in the domain of colloidal chemistry, in the chemistry of the liver cells themselves rather than in the interstitial changes. Some cases recover from syphilitic cirrhosis with associated ascites very promptly after specific medication.

C. L. Graber, in discussion, mentioned two cases, without syphilitic histories, in which there was albuminuria but no casts or other renal elements.

C. W. Wille said that the remarks upon the fever of syphilis had cleared up the nature of a case which he had seen eight years ago. The diagnosis was localized pleuritis, but no pus was obtained upon inserting a needle. The temperature disappeared very rapidly under mercury but he had not been convinced of the luetic nature of the case until the rapidity with which a fever may disappear after mercury had been mentioned as one of the striking characteristics of syphilitic fever.

R. K. Updegraff surmised that there might be a certain amount of correlation between the universality of syphilis and the fact that blue mass pills or calomel are good for most people.

C. F. Hoover, in closing the discussion, said that it was important,

as had been pointed out by Richard Dexter in his paper, to recognize the luetic nature of certain cases of aortitis. These are the most painful forms of aortitis. When the pathological change becomes too marked the syphilis may be cured but the aortic disease not; diagnosis and treatment should, therefore, be as early as possible.

EXPERIMENTAL MEDICINE SECTION.

The sixtieth regular meeting of this Section was held Friday, February 9, at the Cleveland Medical Library, the Chairman, F. C. Waite, in the chair.

The program consisted of an address upon "The General Physiology of the Adrenal Glands," by R. G. Hoskins, Ph. D., Professor of Physiology in the Starling Ohio Medical College (appearing in full on page 189.)

G. N. Stewart, in opening the discussion, said that he might have welcomed an invitation to discuss the physiology of the adrenal glands some years ago, but in the interval he had become committed to a, perhaps, superficial investigation of adrenal function. A hypercurious state of mind in regard to arterial hypertonus and the investigation of clinical conditions of persistent hypertonus had led to a search through the literature which resulted in a state of mental perplexity, a state not conducive to eloquence. Fraenkel had apparently shown that epinephrin, for the sake of brevity we may so designate the substance derived from the adrenal glands, is present in the blood and that it is easy to establish the presence of increased amounts in the blood by the stimulating action of the serum upon segments of rabbit's uterus. His own experimentation soon showed that any serum whatever caused marked augmentation of the rate and strength of the beat of rabbit's uterus, and that the length of time during which the serum was kept had little effect upon this action. The substance present in the serum which had this augmentatory effect might possibly be epinephrin. But since epinephrin is said to be so readily oxidized and destroyed within the body and the augmentatory substance in the serum used was not at all readily destroyed outside the body, it seemed improbable that the substance which stimulated rabbit's uterus was epinephrin. It seemed well to determine whether the serum would give more than one of the epinephrin reactions. A more crucial experiment would result from the use of a tissue normally inhibited by epinephrin (intestine) and alongside it another normally stimulated (uterus). In such experiments the results of the action of the same serum in equal amounts were identical—the substance in the serum could not, therefore be epinephrin. Segments of rabbit's intestine are admirable as an indicator of epinephrin action, but the effect produced upon this tissue by a serum is not sufficient proof of the presence of epinephrin in the serum. From his own experiments he concluded that every serum contains something, which acts in a similar way upon both uterine and intestinal muscle, which compares with the adrenalin action in the case of the uterus but tends to mask it in the case of the intestine. He had not been convinced that epinephrin is the substance in blood serum which produces the inhibitory effects upon rabbit's intestine noted. In his own experiments with rabbit's intestine he had obtained at the beginning a kind of hesitating inhibition but he had never obtained the striking inhibition noted by the author, except with blood collected in such a way that the adrenal contribution constitutes a very large proportion of the blood and during stimulation of the splanchnic nerves. With blood from the general circulation in clinical cases the results had been uniformly negative. He had always used heterologous blood, but this, according to Doctor Hoskins, ought to make no difference. Until it is proven that epinephrin is normally given off in sufficient amount to cause physiological effects we do not know that the adrenal secretion has any useful func-

tion, that the material furnished by the glands is not a disorganization excretion. It is important that we secure evidence that epinephrin is given off continuously under normal conditions or periodically in increased amounts under sympathetic stimulation. The hypothesis of Cannon and Hoskins is perhaps the best so far advanced, but he did not feel sure that the presence of material derived from the adrenals had been demonstrated in the general blood or in that of the adrenal veins. The next best thing to such absolute proof was the curves shown by Professor Hoskins, but before these could be entirely accepted it was necessary to eliminate renal products, asphyxia, products derived from intestinal stimulation, etc.

G. W. Crile felt sure that from the clinical as well as the experimental point of view the hypothesis of Cannon and Hoskins is supported. Work in his own laboratory has corroborated the findings of Professor Hoskins. The clinical conception of certain pathological conditions is in line with the results reported; the latter are such as one would expect to happen from the clinical data at hand.

J. J. R. Macleod said that his own interest in the adrenals had centered around the question of the control of carbohydrate metabolism by these structures. It has been known that stimulation of the sympathetic system increases the percentage of reducing substances in the blood, whereas such stimulation is said to be ineffectual in producing hyperglycemia after removal of the adrenals. He had found that stimulation of the splanchnic failed to produce hyperglycemia after ablation of the left adrenal. Stimulation was also not followed by hyperglycemia after cutting of all the nervous connections between the celiac plexus and the liver, the adrenal glands being, however, intact. Stimulation of the hepatic nerves after ablation of the adrenals was not followed by hyperglycemia. The experiments led to the general conclusion that the adrenal secretion does seem to perform some function in maintaining the integrity of certain parts of the sympathetic nervous system. It seemed highly improbable that increased muscular activity after the stimulus exerted by certain emotions could be due to an increased amount of dextrose in the blood brought out by hypersecretion of the adrenals. The influence of acapnia and asphyxia in the production of glycemia was difficult to determine; neither was an actual cause, in both the result seemed to be merely a matter of association.

Torald Sollmann said that his own criticism must be philosophical rather than based upon experimental work of his own. The first question was whether the results described by Professor Hoskins prove the presence of epinephrin. Any one of the reactions described may be produced by a variety of substances; and a number of substances, some of which might occur in the blood, may have both augmentor and depressor sympathetic effects. Therefore, the main proof of the presence of epinephrin lies in the assertion that the results are produced by blood drawn from the adrenal vein and not by blood from anywhere else. If this is so it is more than likely that the results described are due to adrenal substances. From the practical standpoint, it makes no difference whether the substance which has the sympathetic stimulating action is epinephrin or not.

R. G. Hoskins, in closing the discussion, agreed with G. N. Stewart in the statement that rabbit's uterus is unreliable and that with it most any blood from most any source would give the so-called adrenalin effect. Any conclusions drawn from experimental work based upon rabbit's uterus can have little value. In regard to the elimination of asphyxia as a factor in producing the results ascribed to the emotions, it was found that the typical epinephrin reaction was not produced by blood from the femoral vein or from the lower portion of the cava, but by blood which differed from caval blood only by the addition of renal and adrenal substances, and Cannon had shown that renal blood alone does not have the inhibitory effect upon rabbit's intestine. He had rather taken it for granted

that epinephrin is present in the adrenal blood, without attempting to offer absolute proof as the result of a series of experiments; in one experiment he had found that blood shed into the peritoneal cavity directly from the adrenal vein gave the epinephrin effect, whereas blood derived from the general circulation did not. In experiments with rabbit's intestine the tissue must be calibrated because of individual differences in sensibility. Unless the tissue is calibrated negative results are not conclusive. While uterine muscle might be used to reinforce the findings negative or conflicting results obtained through its use, in view of its extreme unreliability as a test object, ought not weigh too heavily against the results obtained upon rabbit's intestine, which tissue seems to react in a specific way toward epinephrin. In practical tests the determination of epinephrin in the general circulation might be difficult. Although experimental work shows the substance to be present in the blood of the adrenal vein as the result of various forms of stimulation, fear, fright, pain, etc., by passage through the lungs and the resulting oxidation and by dilution the amount of epinephrin in the general circulation might become so reduced as to be impossible of certain detection.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The fifty-seventh regular meeting of this Section was held Friday, February 23, 1912, at the Cleveland Medical Library, the Chairman, W. E. Bruner, in the chair.

W. J. Abbott showed a case of cartilage transplantation. The patient, a negro male aged 24 years, had been trampled by a cow at the age of ten years; the nose was injured and a piece of cartilage was removed. When the patient presented himself at the dispensary the nose was markedly deformed, the tip being soft and flattened and apparently free of cartilage. A paraffin injection was made but the result was not so good as had been hoped because of the lack of rigidity in the tip of the nose. It was decided to attempt to build up the tip by transplanting a piece of cartilage. The latter, obtained by submucous resection from a case of septal deviation, measured three-quarters by one inch. At the time the patient was shown, the tenth day since the operation, the appearance of the nose was greatly improved and the tip was quite firm. It was still too early to determine the ultimate fate of the transplanted cartilage.

J. E. Cogan reported two cases in which there was a possibility of recovery after malignant newgrowths of the nose and throat. In one case, a man aged 55 years, a tumor of the septum had led to considerable deflection of the side of the nose. Microscopic examination showed the tumor to be a typical epithelioma. The tumor became ulcerated and infected. Under antiluetic treatment the lesion disappeared completely and remained absent during the several subsequent months during which the patient was under observation. Inquiry revealed that the tumor had recurred and had led to the patient's death. In the second case a mass of tissue growing from the posterior wall of the pharynx had been present for three months before the patient was first seen. Upon microscopic examination a diagnosis of possible malignancy was made. Antisyphilitic treatment was started but was without results. The patient passed into the care of another physician; two months later the mass of tissue disappeared and has not since recurred. In view of the disappearance of the mass it seemed probable that it was a granuloma rather than malignant tumor tissue. The disappearance of the mass may have been a delayed action of the specific treatment employed.

W. J. Abbott reported a case of fracture of the thyroid cartilage. Fracture of the thyroid cartilage is rare; it occurs most frequently after middle life and is usually due to direct violence. In the majority of cases it has been associated with fracture of the hyoid bone. The symptoms,

which may be severe and alarming, are due largely to swelling of the mucosa. The case reported was that of a man of forty odd years of age who had been struck upon the side of the head and neck. Eighteen hours later he came to the dispensary complaining of hoarseness. There was crepitation; fracture of the thyroid cartilage was found, without involvement of the hyoid bone. The laryngeal mucosa was moderately swollen and congested. Since the symptoms were not alarming and since the most dangerous stage had already been passed, simple rest and immobilization were advised, under which the patient recovered. In fracture of the thyroid cartilage tracheotomy may be necessary early because of the edema and swelling, or late because of the cicatricial contraction.

Leo Wolfenstein made a brief report of a case, a woman who complained of gradually decreasing vision. Ophthalmoscopic examination showed the cupping of the optic nerve which is so characteristic of glaucoma. In this case, however, the tension was not increased.

S. H. Monson reported a case of buphthalmia and presented the specimen (published in full on page 188). W. W. Tuckerman called attention to the cystlike distension of the anterior chamber which persisted even after the globe was ruptured. S. H. Monson said that the eye was found to be ruptured as soon as it was examined after removal. He was not inclined to ascribe the rupture to the operative manipulation but thought it rather more probable that the globe had been ruptured by the blow which had started all the acute symptoms.

W. E. Bruner presented the case which had been reported at the previous meeting as probably hereditary optic atrophy (page 154). Since that report the Wassermann reaction had been found to be negative and the spinal fluid showed nothing abnormal. The patient had recently consulted deSchweinitz and Spiller, both of whom agree that the case is probably one of familial optic atrophy. The X-ray plates show thickening of the sella turcica and of the surrounding sphenoid bone.

COUNCIL MEETING.

At a meeting of the Council of the Academy of Medicine held Tuesday, February 13, 1912, the President, J. V. Gallagher, in the chair, H. L. Plannette was elected to active membership. The names of E. A. Rice and E. C. Horne were ordered published. The following active members were transferred to non-resident membership: H. H. Webster, Indianapolis, Ind.; E. D. Brown, University of Minnesota, and A. B. Eisenbrey, University of Pennsylvania.

Communications were received from F. J. Geib and W. T. Howard explaining their inability to serve as chairmen of committees. E. P. Carter was appointed Chairman of the Program Committee and J. G. Spenser Chairman of the Committee on Public Health.

A motion that the Secretary-Treasurer be paid the sum of \$300 per year carried. It was ordered that David Marine be reimbursed to the sum of \$13.50 for money advanced to Professor Martin H. Fischer.

An inquiry by F. W. Davis regarding the distribution of dodgers by the Prophylactic Babies' Dispensary was referred to the Civic Committee.

C. E. Ford read an editorial clipping from a Cincinnati paper regarding the formation of a laymen's society which intended to deal with medical subjects. He believed that this was properly the function of medical societies and that such matters should be taken up by the Academy rather than by the laity. The question was referred for investigation to a special Committee on Publicity, to consist of the Chairmen of the Civic and Public Health Committees. The Chair appointed C. E. Ford, W. B. Laffer, R. K. Updegraff, A. S. Storey (Chairman of the Civic Committee) and J. G. Spenser (Chairman of the Public Health Committee). A. S. Storey was made chairman of the special committee.

J. J. R. Macleod presented the report of the Committee on Dispensary Abuse and Contract Medical Practice regarding the control of dispensary, clinic and hospital abuse. The report was received, the committee was discharged and a vote of thanks was tendered J. J. R. Macleod for his excellent work as Chairman of the Committee on Dispensary Abuse and Contract Medical Practice. The Secretary was directed to arrange for the publication of the report and for the printing of six hundred reprints and the distribution of the latter to active members of the Academy, to hospitals, dispensaries, charities and such other bodies as might be concerned. (Report published in full on page 126).

Book Reviews.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I, number 1. Octavo of 133 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Published Bi-Monthly. Price per year: Paper, \$8.00. Cloth, \$12.00.

After looking over this item our first impulse was to return it to the publisher as unworthy of the time and space incident to comment, and this would have been done were it not for the widely accepted aphorism that silence means consent. Scientific publishing is a serious business, charged with responsibility, and the scientific world has a right in this respect to demand consideration. Unfortunately, in medical lines the business of publishing is frequently very loosely handled, and we are often confronted with an attempt to arrest attention under false pretenses. The present publication seems to come perilously near being such an instance. It would seem as if the publishers had forgotten their obligation in an attempt to dispose of a doubtful production through the exploitation of the author's reputation, and we fear that Doctor Murphy has been misled as to the serious demand by medical science for such a contribution. As a pleasing souvenir for private printing and distribution among the close personal admirers of Doctor Murphy, this informal account of some of his clinics might be a welcome gift, but to present it thus formally as serious medical literature, a series of volumes with a title and price, seems inexcusable. Such medical chit-chat may be occasionally welcome in the clinical columns of weekly publications designed for the delectation of occasional readers, although even this may be questioned because of the unnecessary burden it adds to the volume of medical printing.

The publisher's announcement is frank; that the papers are "verbatim stenographic reports" and "in no sense to be confused with a systematic book on surgery;" they are edited "only for the purpose of eliminating unnecessary repetition." They are, in other words, the shorthand notes of hurried clinical talks by an exceedingly busy man, apparently without particular preparation, and confessedly without careful review. There are nineteen divisions covering 133 pages, some of the subjects being carcinoma of the breast, varicocele, lipoma of the shoulder, salvarsan, fracture of the patella, and fistula in ano. In each instance a short outline of the case is given, followed by casual comments which frequently lead one far away from the subject; remarks are interjected during the operation, which is not fully described, remarks which doubtless served to direct the attention of visitors at the time, but have little meaning in print. When an exacting point is mentioned the statements are frequently confusingly involved, even contradictory at times, as must be the case when one attempts to punctuate an operation with interrupted remarks on a subject requiring accurate, logical statement. The idea is adhered to so consistently that in one instance several pages are devoted to a question and answer controversy with an interne; atmosphere might have been added by including a photograph of the house officer.

It is announced that the papers are to be issued in serial form, a number of about 130 pages every other month at \$8.00 a year in paper, \$12.00 in cloth. We cannot believe the publication will be of abiding value.
C. E. B.

A Treatise on Tumors. For the use of Physicians and Surgeons. By Arthur E. Hertzler, M. D., Ph. D., of Kansas City, Mo., assistant Professor of Surgery in the University of Kansas. Octavo, 728 pages, with 538 illustrations and 8 plates. Cloth, \$7.00 net; half Persian morocco, gilt top, de luxe, \$9.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

As a well-balanced presentation of tumors Hertzler's volume is unique—we know of no book which correlates so well the scientific fundamentals with the practical considerations. Upon the treatment of tumors little can be said—the imperative form of the verb “to cut” would furnish a very satisfactory general therapeutic armentarium. But Hertzler's volume contains information which helps make clear the why of the cutting and, what is more important, emphasizes palliative measures when cutting with the hope of complete cure is out of the question. More important than and antecedent to treatment is diagnosis, with its corollary of prognosis, and upon these points the volume gives valuable information because it does not neglect the underlying general principles upon which real knowledge of the subject of tumors must be based.

A forty page discussion of the “General Biology of Tumors,” which outlines for the reader with sufficient clarity and without confusing detail the essentials relating to the nature, growth, classification and etiology of tumors, is followed by 160 pages of “Special Pathology of Tumors,” in which are taken up seriatim the various kinds of tumors, the information under each group being subdivided under such heads as general conception, gross appearance, microscopic structure, metastasis, secondary changes, relation to the general health, diagnosis, prognosis and treatment. Such a manner of consideration correlates well and makes for ease of reading. The “Regional Consideration of Tumors” occupies the final 490 pages of the book and discusses, again without neglecting such fundamentals as nature, histology and metastasis, the practical considerations of the diagnosis and treatment of tumors of the various organs and regions.

The volume is profusely and excellently illustrated. The figures showing the microscopic appearance of tumors would do credit to any text-book of pathology and those illustrating the gross appearance and the regional relationships of tumors would add value to even the most extensive system of surgery. We would recommend the insertion of the letter “a” at the proper point in Figure 152, the proper spelling of leukoplakia in Figure 229 and the return of the letter “e” which has been dropped in printing from “hypernephroma” in Figure 377; in Figure 407 parametrium would seem preferable to perimetrium.

References to the more important literature are given in number sufficient for him who wishes to go further.

We began by saying that the volume is unique. We may conclude with the statement that it is just those points which make the book unusual that render it extremely valuable to the practitioner and that it covers an important field in a way that the physician who wishes really good information cannot afford to overlook.

O. T. S.

Infections of the Hand. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By Allen B. Kanavel, M. D., Assistant Professor of Surgery, North-

western University Medical School, Chicago. Octavo, 447 pages, with 133 illustrations. Cloth, \$3.75 net. Lea & Febiger, Philadelphia and New York, 1912.

In this exhaustive contribution of 438 pages, the important and practical subject of infections of the hand is discussed in all its details. The anatomy of the hand in its relation to inflammatory processes is elaborately described, much original work is presented and experimental data are given. The practical surgical deductions are largely based on the anatomical and experimental investigations and, it is believed, will be found to be trustworthy.

The author does not believe in the paramount importance of the use of drainage by tubes, gauze, etc., and emphasizes the necessity of making the incisions in the proper place and of the proper size. He looks upon Bier's passive hyperemia as a "possible adjuvant in the treatment, but never as the primary factor." Nor does he believe that sera and the injection of substances to increase leucocytosis have thus far been known to be of much value in these particular infections.

C. A. H.

Blair's Pocket Therapeutics. A Practitioner's Handbook of Medical Treatment. By Thomas S. Blair, M. D., Neurologist to Harrisburg, Pa., Hospital; Author of "A System of Public Hygiene," "Blair's Practitioner's Handbook of Materia Medica," Member of the Harrisburg Academy of Medicine, American Medical Association, etc. 373 pages, special Bible paper; bound in limp leather; price, \$2.00. The Medical Council Co., Philadelphia, 1911.

A general objection to compend and pocket manuals is overcome in the case of Blair's "Pocket Therapeutics," by the unusually pleasant English which the author has succeeded in getting into such limited scope and which makes the little book rather entertaining reading even if one is not interested in the therapeutic information conveyed. A departure is the way of printing dosages in the running text, drugs to be given in large doses being in upper case letters, medium dosages in lower case letters and small dosage drugs in italics; at the end is a table showing quantitatively what are large, medium and small doses of the various drugs. In the text treatment is discussed in a general, elastic fashion; at the end of each chapter are given a few selected prescriptions in detail. He who desires a pocket manual of therapeutics ought to find this book helpful.

J. D. P.

Practical Electro-Therapeutics and X-Ray Therapy—With Chapters on Phototherapy, X-Ray in Eye Surgery, X-Ray in Dentistry, and Medico-Legal Aspect of the X-Ray. By J. M. Martin, M. D., Professor of Electro-Therapeutics and X-Ray Methods in the Medical Department of Baylor University, in the Medical Department of Southwestern University, and in the State Dental College, Dallas, Texas. Cloth, 446 pages, 219 illustrations, \$4.00. C. V. Mosby Company, St. Louis, 1912.

In this volume the author has very nicely succeeded in making a "practical" book for the general practitioner and student. A book of interest to the specialist also for the work shows the personal efforts and results of the writer, especially in his X-ray therapy. The scope of the work is large but the subject matter concisely handled. The usual cuts of electrical apparatus are found but the photographs are original. The results shown are convincing, as the author states: "Electric and X-ray methods have proven their worth. They are receiving merited recognition as diagnostic and therapeutic agents in medicine and surgery, and the physician who disregards these methods may be accused of neglect." The

various electrical and light measures receive due attention, and the field of radiology, including a chapter on X-ray in dentistry, is briefly covered. A short chapter on the medico-legal aspect of the X-ray concludes the volume. This book can be recommended.

W. I. L.

Blakiston's Quiz Compend—A Compend of Genito-Urinary Diseases and Syphilis, Including Their Surgery and Treatment. By Charles S. Hirsch, M. D., formerly assistant in the Genito-Urinary Surgical Department, Jefferson Medical College Hospital; Consulting Physician, Social Service Hospital and Juvenile Protective Association, Philadelphia. Second edition, cloth, 359 pages. 74 illustrations, \$1.25 net. P. Blakiston's Son & Co., Philadelphia, 1912.

The second edition of this volume represents a revision of the former edition with considerable new material which includes much of the new work in genito-urinary surgery. The use of bacterins, the operations of epididymotomy, vasotomy, anastomosis of the vas-deferens for the cure of sterility, the fulguration treatment of tumors of the bladder and the newer tests of kidney function have been fully treated. In the chapter on syphilis the Wassermann reaction and the use of salvarsan have been well described. The reviewer wishes to compliment the author on his very simple and clear explanation of the phenomena of complement fixation in the serum diagnosis of syphilis, after having painfully stumbled through many other attempted explanations which did nothing but confuse. The proof reading of the book was unfortunately rather careless.

H. L. S.

Acknowledgments.

The Taylor Pocket Case Record. By J. J. Taylor, M. D. 252 pages, red limp leather, \$1.00. The Medical Council Co., Philadelphia, 1911.

A Handbook of Practical Treatment. In three volumes. Edited by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. Kelly, M. D., Late Assistant Professor of Medicine, University of Pennsylvania. Volume III; Octavo of 1095 pages, illustrated, cloth, \$6.00 net, half morocco, \$7.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

Operative Obstetrics, including the Surgery of the Newborn. By Edward P. Davis, M. D., Professor of Obstetrics, Jefferson Medical College, Philadelphia. Octavo of 483 pages with 264 illustrations, cloth \$5.50 net. W. B. Saunders Company, Philadelphia and London, 1911.

Minor and Emergency Surgery. By Walter T. Dannreuther, M. D., Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York City. 12mo. of 226 pages, illustrated, cloth, \$1.25 net. W. B. Saunders Company, Philadelphia and London, 1911.

The Surgery of Oral Diseases and Malformations. Their Diagnosis and Treatment. By George V. I. Brown, D. D. S., M. D., Oral Surgeon to St. Mary's Hospital and to the Children's Free Hospital, Milwaukee; Professor of Oral Surgery, Southern Dental College, Atlanta, Ga. Octavo, 740 pages, with 359 engravings and 21 plates. Cloth, \$6.00 net. Lea & Febiger, Philadelphia and New York, 1912.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burghard, M. S. (Lond.), F. R. C. S., Surgeon to King's College Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green, London. New (2nd) edition, thoroughly revised and largely

rewritten. In five volumes. Cloth, \$6.00 net per volume. Lea & Febiger, Philadelphia and New York, 1912.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. Volume XIV, No. 1. Whole No. 53, Vol. 1, March, 1912. Surgery of the Head, Neck and Thorax.—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza.—Diseases of Children.—Rhinology and Laryngology.—Otology. Lea & Febiger, Philadelphia and New York.

U. S. Department of Agriculture. Bureau of Plant Industry; Bulletin No. 234.

Public Health and Marine-Hospital Service of the United States: Public Health Bulletin No. 51. Reprints from Public Health Reports Nos. 69 and 71. Hygienic Laboratory: Bulletin No. 79.

Annual Report of the Library Committee of the College of Physicians of Philadelphia for the year 1911.

Reprints by:

Edward Milton Foote, New York.

Henry C. Eyman and John D. O'Brien, Massillon, Ohio.

W. B. Saunders Company, Publishers, Philadelphia and London, Complete Catalog of New Books and Revisions, Sixteenth Edition, Revised to February, 1912.

Medical News.

Public Health and Marine-Hospital Service Examinations: A board of commissioned medical officers will be convened to meet at the Bureau of Public Health and Marine-Hospital Service, 3 B street, S. E., Washington, D. C., Monday, April 8, 1912, at 10 o'clock a. m., for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service.

Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character.

The following is the usual order of the examinations: 1, Physical; 2, Oral; 3, Written; 4, Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination of the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon.

Promotion to the grade of surgeon is made according to seniority and after due examination, as vacancies occur in that grade.

Assistant surgeons receive \$1,600, passed assistant surgeons \$2,000, and surgeons \$2,500 a year. When quarters are not provided, commutation at the rate of \$30, \$40 and \$50 a month, according to grade, is allowed.

All grades above that of assistant surgeon receive longevity pay, 10 per cent in addition to the regular salary for every five years' service up to 40 per cent after twenty years' service.

Then tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For further information, or for invitation to appear before the board of examiners, address "Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C."

The Ohio State Teachers' Association meets at the Hotel Chitenden, Columbus, Ohio, Friday, April 5.

Academy of Medicine of Toledo and Lucas County: The General Meeting, held on February 2, was addressed by Martin Fischer of Cincinnati on "Essentials in the Treatment of Nephritis."

The program of the Section on Pathology, at the meeting of February 9, was as follows: 1, The Pathology of Chronic Inflammation, by W. E. Moseley; 2, Some Types of Acute and Chronic Stenosis of the Larynx, by Thomas Hubbard; 3, Demonstration of a Gall Bladder with Diverticulum and Impacted Stone, by L. F. Smead; 4, Demonstration of Thyroglossal Duct by Joseph Sweeney.

The program of the Section on Medicine for February 16, was as follows: 1, Vaccine Treatment in Tuberculous Adenitis, by W. G. Gardiner; 2, Pleuritic Effusions in Infancy and Childhood, by H. J. Morgan; 3, Treatment of Pleuritic Effusions in Infancy and Childhood, by C. D. Selby.

The Charity Hospital Medical Society met Wednesday, February 21, for the following program: 1, Presentation of Cases, by Moore and Graham; 2, Demonstration of Heart Cases, by W. H. Merriam; 3, Aortic Aneurysm, by N. P. McGay; 4, Surgical Aspect of Aortic Aneurysm, by C. A. Hamann.

Lakeside Hospital Medical Society: The program of the fifty-eighth regular meeting, held on Wednesday, February 28, was as follows: 1, Demonstration of Specimens of Cyst of the Ovary, Hydrops of the Appendix and Adenocarcinoma of the Uterus, by W. H. Norton; 2, Presentation of a Case of Luetic Osteomyelitis with Fracture, by T. P. Shupe; 3, Presentation of a Case of Grave's Disease in a Negro, by C. B. Craig; 4, Presentation of a Case of Grave's Disease with Rapid Improvement, by T. S. Keyser; 5, Demonstration of Pathological Specimens, by H. O. Ruh.

J. J. R. Macleod, Professor of Physiology in Western Reserve University, will spend the rest of the year until the opening of the next session in Europe. During May and June he will deliver a series of eight lectures on Carbohydrate Metabolism in the course of advanced lectures in physiology offered by the University of London.

R. G. Schnee, formerly Professor of Pathology and Bacteriology in the Cleveland College of Physicians and Surgeons, and **F. W. Riley** have opened a diagnosis laboratory, to be known as The Cleveland Laboratory, at 605 and 607 The Bangor Building.

R. G. Perkins, Professor of Hygiene and Preventive Medicine in Western Reserve University, recently appointed by the Governor a member of the State Committee of five to cooperate with the Committee on Organization of the Fifteenth International Congress on Hygiene and Demography, to be held in Washington, D. C., September 23 to 28, 1912, has been made a member of the Executive Committee of the Congress.

Deaths.

Lyman Watkins, Blanchester, Ohio, died January 21, aged 57.

Adolph Billhardt, Upper Sandusky, Ohio, died January 22, aged 78.

George C. Henkel, Farmersville, Ohio, died January 25, aged 76.

Jacob E. Powell, Findlay, Ohio, died January 19, aged 50.

Joseph Sager, Celina, Ohio, died January 22, aged 73.

Elias A. Keiser, Columbus, Ohio, died January 21, aged 73.

Edward W. Cornetet, Piketon, Ohio, aged 45.

Harry Frederick Ryder, Cleveland, Ohio, died January 12, aged 31.

Christian F. Schiele, Cincinnati, Ohio, died January 23, aged 38.

69. **Joseph E. Wenman**, New Philadelphia, Ohio, died January 22, aged

65. **Thomas Chalmers Minor**, Cincinnati, Ohio, died February 18, aged

Asa Brainerd Isham, Cincinnati, Ohio, died February 20, aged 67.

William Guy Wren, Columbus, Ohio, died February 14, aged 40.

David P. Shie, Orrville, Ohio, died February 6, aged 49.

Joseph I. McCoy, Steubenville, Ohio, died February 21, aged 55.

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The Newer Meaning of Symptoms in Hysteria.

By GEORGE M. PARKER, M. D., Chief of Clinic for Nervous and Mental Diseases, St. Vincent's Hospital, New York City.

The symptom in any disease process is one of the few fixed deposits in the structure of medical knowledge. It has come down to us as little changed as a Quaternary fossil. We have seized it, not because of its venerable character, but because, in some way, it gives a meaning to any system of knowledge into which it may be incorporated. Yet this meaning has been frequently and infinitely changed; it has been bent to all kinds of adjustments; it has been interpreted and reinterpreted without having lost its inner meaning for us and this despite all the accretions which man has left upon it in the diverse workings of his mind. It remains a symptom, something fixed, which we have to use in producing a theory of morbid construction; nor is any road so direct to the understanding of the latter as that marked out by symptom formation. This much as an apologia for the presentation of anything having to do with so common a matter as a symptom.

Hysteria is a most ancient disease and its symptoms have been fixed by the keenest observers under conditions stimulating attention as only can the engrossing perverse activities of woman. Observations here have been forced upon the medical man of all time. Hence a certain compensating richness of description has been poured out. We of the moment are the gainers, but always one is destined to pass on more than is gained, "For I learned about women from 'er. . . ." Yet this mass of stuff, literally thrust upon us, never yielded to any construction until Charcot's time; Janet followed Charcot with the first definite system approaching psychological explanation and clinical facts. Freud's theories are the latest and most satisfying. To one who

has worked at the subject from the Janet standpoint, realizing in this almost too fine and clear a psychological structure with painfully evident clinical gaps, Freud's work strikes in with especial insistency, largely because a well-established knowledge of psychopathology is demanded for a proper appreciation.

Because the symptom meaning is to be held to rather singly, any extended explanations of Freud's conceptions of hysteria would here be out of place, although they must be defined briefly. Freud begins with the old human story of the avoidance of the painful, unpleasant, inhibiting, a usual and normal mental process. A given group of representations will not tolerate another inimical to it; the latter is put out, repressed and when it appears in the unconscious, it is there only because it has been put out and not because of any weakness of the synthetic process as held by Janet. The conflict which this represents is constant, but in widely different degree; this constancy must demand some driving, dynamic force. Thus we have come to see that the conflict cannot be between groups of ideas but between the affects or feelings belonging to these groups, for only these affects have the force. So much established, namely, that such conflict exists and that, when intense, one set is dominated by the other if they mutually tend to inhibit rather than reinforce, the next point lay in the defining of the conditions of this conflict, in determining what groups of ideas are by nature antagonistic. Freud pushed his way through countless individual life histories, looking at first for psychic traumas which typified in the gross this conflict. He found a particular type of conflict always involving the feelings of sex on the one hand and those feelings built about self on the other. At first he came on these in maturity, then in puberty and finally in the infantile period, for the lines had led steadily to this point. It was empiricism, not a worked-out theory to which facts were bent. He could not be mistaken on this ground. Yet here he came also to find that it was not the matter of a psychic trauma which determined things but a type of infantile sexuality. This infantile sexuality¹ he has made up of many components characterized by wrong functioning due to a fixation of development at one or more of the stages through which he found the psychosexual life to pass, from that which is termed autoeroticism up to the full development of the normal striving for the normal and proper object. Making for this he found a certain constitution which helped toward these anom-

alies; but more important were the factors touching the early relations between the child, his parents and other members of the family group, especially as regards the great problems of birth and life, which are presented to the child for solution by the demands of life.. The child always accentuated his constitutional leanings by constructions involving the foregoing relations to his environment, in this leaving definite marks upon his psycho-sexual development. The demonstration of such lines back from the neuroses to infantile sexuality strengthened the psychological determinism, i. e., the neuroses were rigidly determined by these early factors, each of which determined the succeeding and were in turn determined by those that preceded. The process of repression operated from the beginning; its expression lay in the content held in the unconscious by the infantile amnesia and this material, thus placed, brought to it other content of other successive repressions by reason of associative strength, for always the content of repressions must be similar or must have a similar feeling tone, just because the repressions, being conditioned by previous repressions, must operate on similar groups or on groups with similar feelings.

Moreover, the conflict must endure from its remote beginning, if the two main parties to it remain the self and the sex, the individual and the race and if these two be forced to conflict due to any abnormal sex deviation produced in early years; yet, not only must it endure because these strivings are fundamental but, as a codicil to this, because no such thing as an absolute erasure of a feeling belonging to such a strongly motivated striving as life and sex can ever be. Some issue must result for the preservation of the individual. Such an issue is seen in several psychological processes. All these can be generalized under attempts to handle the feeling tone which belonged to the repressed group of ideas and which has been set free by the repression. The ways in which these attempts express themselves make the symptoms of hysteria and in the rest of the paper this connection will be maintained as elucidating the meaning of symptoms.

Of these different mental processes Freud makes but one definitely diagnostic of an hysterical mechanism. This is termed "conversion," meaning, in brief, the result of a compromise in the conflict whereby the feeling detached from the repressed content produces changes in the expression of function of certain

organs through some interference with innervation at this point. There is a conversion from a psychic to a somatic mark. Disturbed bodily function has been a strong and characteristic mark in hysteria; hysterogenous zones of anesthesia, hyperesthesia, dysesthesia; contractures in joints; rigidity of limbs; disturbances of motility; changes in special senses, such as limitation of the field of vision, amblyopia, perversions of taste and smell, acoustic anomalies; marks in the alimentary tract, as globus, vomiting, bulimia, diarrhea. The proof really needed is that showing the mechanism as efficient to produce and as producing these. The general activity of any affect or feeling is well known; it is the bearer of the energy, the works of any psychic manifestation. But an affect freed from a former connection and seeking another has an even sharper result because it is unsatisfied. Beyond this, however, Freud rests the efficiency to produce these symptoms upon another factor.² There must be open for the attachment of this free affect a certain readiness in some particular organ, a condition of irritability induced by any physiological or pathological process touching this particular part and a correspondence or identification of such an organ or part with that which he calls an "erogenous" zone. An erogenous zone³ "is that organ the stimulus of which bestows on the impulse the sexual character" or "a part of the skin or mucous membrane in which the stimuli produce a feeling of pleasure of definite quality." The chief erogenous zones, those "predestined," are the mouth, anus, genitals, breast, nipples; but other regions may assume a similar function. Primarily, in the infantile period, such zones are "autoerotic" in the production of the feeling, a single pleasure is their aim; i. e., the manifestation knows no other object than itself. It marks the earliest step. Also the function of most of these zones is double; the mouth serves both the self and the sex, the genitals possess an excrementory function as well as a sexual. The biological significance of this is plain; it ensures or enforces bodily or self functions by a mechanism which synchronously raises the stimuli to a level where pleasure ensues. Thus the sex aim of infantile impulses centers in the production of gratification through excitation of this or that erogenous zone, while in puberty all these zones and their corresponding gratifications become subordinate to the primacy of the genital zone as it assumes a readiness for its complete function. There is nothing unreasonable here, nothing of the

gross sexuality with which Freud has been accused of coloring childhood.

In tracing the conversion mechanism, let us assume a conflict represented by a sudden necessity for sex occupation, as in marriage or a disappointment in love or any other of the many situations in which sex factors enter. Repression occurs of these sex factors with their feeling consort; because they are unbearable, the individual flees them. In this the feeling becomes, freed, unattached, removed from its former object. It demands an attachment elsewhere. Instead of being fused with some other general content, instead of becoming "sublimated" into something useful or fine by finding an attachment in full consciousness as in the normal, it finds the "anaphylactic" spot in a portion of the body which presents a temporary or permanent inferiority in combination with a fixed erogenous zone. Yet why should this erogenous zone be so peculiarly open since it serves a normal function? The answer lies in the fact that this particular zone has been unduly impressed with the sex part of its function in infantile years and hence has come to repression by that part representing the self. As a part of the unconscious it stands peculiarly ready to seize that which has been repressed at a later moment. Hence to it the later repressed and unattached feeling is connected, so increasing its power that further complete repression is no longer possible and an appearance takes place in which the reentry to consciousness shows not in the form of the later repressed content but in a form representing the repressed sexual part of the infantile erogenous zone. In other words we see here either a direct expression of infantile sexuality or a return to it. This reappearance of course leads to further repression. If this be partial, a compromise is effected whereby that part of the body representing the erogenous zone in question shows a single or partial disturbance in function; if it be complete we find the proper function in complete abeyance, the repression being so stringent as to repress not only the sex part but as well that serving the self, the proper physiological functioning. In either instance a conversion has occurred.

In illustrating this, let the case previously assumed stand. After an interval, for a certain incubation period exists for the production of hysterical symptoms, there appears a vomiting, either general or selective, with marked sensations of disgust or aversion. By psychoanalysis such cases can be traced

back to the mechanisms above described. In the double function of the mouth, serving self and on the other side serving sex as an erogenous zone, this organ has come to be unduly excited along the latter line and hence overdeveloped in this direction in many obvious ways. It has come to repression, but originally with no extreme marks presenting as in the latter conversion symptoms. But the content of this repression has added to it at the time of the later shock the content of a much more open sex repression with an equally intense feeling tone to the degree that further complete repression is no longer possible. A compromise occurs; the repressed content reappears but in another form. It shows in the sense of nausea, disgust or persistent vomiting or regurgitation; it has undergone conversion and the symptoms showing this are those which have had to do with the disturbed self or somatic side of the double function of the erogenous zone. Hence not only has the repression operated upon the sex components but it has disturbed the function of the bodily, self components. And all this because the consciousness cannot tolerate the sex elements, due to the effect of their distortion in early psychosexual development. The proof of this intolerance is the absence of any apparent sex marks; their very absence is striking.

The same general scheme applies everywhere in the somatic marks of hysteria. The anesthetics always reproduce a particular, personal erogenous zone peculiar to the individual; erogenous and hysterogenous zones Freud makes equal. The eye disturbances, the limitation of vision, the amblyopia have their basis in the double function of infantile years;⁴ the desire to look at sex objects and the converse, to be looked at, are frequent and normal. The mechanism here is the same; for some reason, cultural or other, the sex component comes to repression. Similar but more intense repressions coming later again lead to an attack at this weak spot by the unattached affect with reappearance of conflict and necessary compromise seen in partial conversion with limitation of vision or complete conversion with amblyopia. The hand is a frequent erogenous zone, evident from the possibility of its being used in sex gratification, an aggressing member. The rigidity, contractures, tremors here trace back regularly by analysis to such aggressions either upon their own person as masturbators or upon the person of others with sex stimulation. A case of hysterical choreiform movements involv-

ing the arm and hand, recently seen, had this origin. The re-tracing of these mechanisms through psychoanalysis has shown devious courses brought about by a symbolism; a symptom, presenting as hysterical, has been found not only to rest upon the mechanism above described but also to present a definite symbolism invariably related to the sex origin. This symbolism is pervasive to a degree unimaginable to one who has not had to do with it. But here again a moment's thought of the real presence of symbolism in every expression, its enormous value and widespread use in all early forms of thought makes this less strange. It is only because we have not brought it to light that it is so rigorously denied.

Nothing shows better the roots of the conversion process than the phantasies of the hysteric, those states into which they pass more frequently than is known, where they are apart from the world, where their rapport is lost for a moment or for a considerable space of time. The analogy to day dreams is marked; both represent wish fulfillments, but, while one is conscious and volitional, the other is unconscious and nonvolitional.^{5, 6} Usually the hysterical phantasy has been at one time a conscious phantasy but has undergone repression. It has sprung from the sex life of the individual, arising during masturbation or other early sex deviation and coming to form an essential part of the sex life. With an abandonment and repression of the act the phantasy has been also repressed. Under conditions increasing desire with failure of adequate outlet, the phantasy appears in place of the former act. All the symptoms noted as proceeding through conversion to hysterical manifestations are frequently compounded of such phantasies. The infantile origin may be well concealed under later constructions which may or may not be sexual; one should not rest upon this, for the deeper meaning is to be found arising from the varied psychosexual deviations of early years. In general the phantasy deserves a greater attention than has been paid it; it gives the clue to the direction and characteristic of the freed feeling or affect which here shows in its true light, dramatizing, as it were, the inner constructions of the mental life and illuminating the meaning of the symptoms presented in consciousness.

Anxiety or apprehension of a particular type has been marked as a frequent symptom in hysteria, although it lacks the diagnostic value of the conversion process. Where it operates

regularly, Freud has given the term of anxiety hysteria. Descriptively considered this is of acute type, rather theatrical in its presentation. It appears on the horizon like a storm cloud, sweeps everything before it and leaves an apparently placid surface. This will be seen to be due to a peculiarity in the formation of the anxiety. This represents another activity of the free feeling tone. In this instance no conversion process has occurred or, over and above this, there still remains unattached a part of the feeling or affect freed from its repressed content. The course of this freed affect from this point may be described as a regression to another repressed content of early life and of such a character that the repression has persisted; from this repression there has proceeded at the time an anxious reaction rather than a conversion process. The same series are reenacted when the later unsatisfied feeling tone strikes in at this particular complex. Yet the resulting anxiety seen as a symptom may appear to touch, for instance, only some personal phase of the patient's later life, and anxiety about the present health, etc., which so frequently colors the picture presented. But analysis shows this anxiety really affecting or having affected some other person intimately bound up with childhood and toward whom early psychosexual impulses had been directed either as increasing the valuation of this person or as demanding this person's erasure for the fulfillment of these constructions. Hence the whole content is repressed with an anxiety resulting. The frequency of anxious reactions in childhood is undisputed and their particular content has been determined both in the retracing of neuroses and in actual work with the mind at this stadium of development. The anxiety often appears to us as the symptom known as phobia. The phobia is to be regarded as an attempt to fix or bind the anxiety, for the latter has a tendency to increase rapidly, due to the increasing widening of the gap between it and the content to which it belongs. The mental pain seen in an anxiety denotes this well. Against this wide extension the phobia is developed as a protection. A phobia of uncleanness, for example, leading to frequent, obsessive washing of the hands or body usually is related to the anxiety state growing out of the repression of the masturbatory content. The washing, as a cleansing, seems to take away the repulsion for certain components of the act; at first, therefore, it served to keep down the early anxiety due to the act. But as the anxiety spread beyond its

original site and proper source, due to the mechanism previously described, as this increase further hurt and limited the individual life, the phobia appeared. To be efficient it came to operate in every situation where infection of the body surface might obtain; everywhere it attempted to head off the anxiety. Even though thus compulsive it saved the individual the extreme pain of the anxiety. In no instance, however, are the steps in the formation of a phobia so simple as here described; on the contrary they are intricate and the particular type of phobia evolved depends on a number of previously determined dispositions of the individual.

Among the various marks accredited to the hysterical "character" several apply toward the infinite facility for sudden changes in disposition; from hate to love is a brief step and frequent. One emotion can supplant its opposite with disconcerting rapidity. Nor can the reason usually be seen. These sudden changes, habitual to the family, often disconcert, discourage or disgust the physician. The same changes appear, however, also in the patient's outside activity. The neurotic plunges into all manner of weird mental occupations with an intensive sympathy; cults, societies, organizations of an acutely sentimental coloring are filled from their ranks. As they plunge in, so also do they climb out, only to enter quite as noisily and thoroughly something else. Hence in a large city it is a matter of some difficulty to locate an hysteric at any given hour. These marks Freud has described in their relation to the physician as "transference."⁷ He sees in them new constructions, awakened during treatment, but based on early experiences and then made real through the actual relation to the physician. The point he emphasizes is that the physician catches the transfer of a hate or love belonging to some past content and this by reason of some identification by the patient of the person of the physician with a former object of this hate or love. Ferenczi⁸ has carried this idea further and in this application shows the connection with the general mechanism which has explained other symptom formations discussed in this paper. The tendency toward transference is general throughout the neuroses. It has back of it the same activity of the free affect or feeling tone still unsatisfied, whether because the conversion or anxiety mechanisms are not possible or because, over and beyond these, there remains a balance. At least this unsatisfied balance seeks in the outside world

objects upon which it can rest. The patient "drags into himself the greatest possible part of this outer world and makes of this the objects of his unconscious phantasies." It is an "attenuation" process which seeks to ameliorate the acuteness of the unsatisfied affect. He well names this tendency "introjection." It explains a varied range of symptoms, here but hinted at, which perhaps are commonplace and usual; but for this very reason are difficult to meet because any understanding of their meaning has been vague and meager.

It has frequently been insinuated that the hysteric might recover with much rapidity were some particular situation to arise demanding restitution in function; that it is all a matter of the will. Freud acknowledges in this a certain measure of truth but he shows the real fallacy in these statements as involving a failure to see the psychological difference between conscious and unconscious acts. The motive for sickness he believes enters into every case, but in a secondary way; it has no part in producing the symptoms but does tend to prolong them. The matter of motive is dwelt upon by wearied relatives and cases not infrequently present where, with such motives no longer existent, the case comes to cure. It comes to cure in this manner, however, because analysis had not succeeded in showing the inner relation and in making possible a readjustment for the patient through this. In all instances the essential points are that such constructions are secondary and not causative, that the apparent motive cannot be guaranteed as the real motive and that the fulfillment of all conditions touching such a motive may not in any way influence the malady.

This brief interpretation of symptoms in hysteria cannot have developed the psychological concepts of Freud in any complete way; nor was this the intent. Yet it is worth while stating that the value of these theories does not rest on the efficient explanation of one series of abnormal functions. Rather, the real criterion is to be found in the definition and illumination afforded by them of all groups of mental activity, normal or abnormal, with the added practical or pragmatic valuation of a therapeutics which, in efficiency and wideness of application, goes far beyond anything which any other system has previously developed.

1. Freud.—Three Contributions to the Sexual Theory. (Brill Translation.)

2. Freud.—Bruchstück einer Hysterie Analyse, *Sammlung kleiner Schriften*, ii.
3. Freud.—L. C. (1).
4. Freud.—Die psychogene Sehstörung in psychoanalytischer Auffassung, *Ärztliche Standeszeitung*, 1910.
5. Freud.—Hysterische Phantasien, *Sammlung kleiner Schriften*, ii.
6. Abraham.—Über hysterische Traumzustände, *Jahrbuch für psychoanalytische und psychopathologische Forschungen*, 1910.
7. Freud.—L. C. (2).
8. Ferenczi.—Introjection und Chertragung, *Jahrbuch für psychoanalytische und psychopathologische Forschungen*, 1910.

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Syphilis and Amentia: A Preliminary Report of a Study of 1050 Cases With Especial Reference to Serological Findings.

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(From the laboratory of St. Luke's Hospital, Cleveland, and the Ohio State Institution for Feeble-Minded, Columbus.)

Oliver Wendell Holmes once said to a mother of a mentally deficient child that a consultation should have been held at an earlier time. At the mother's protest that this had been done Holmes replied, "Ah! the consultation should have been held some fifty years ago."

The causal relation of syphilis to mental deficiency has always been an unsettled question. Various observers have found clinically evidences of syphilis or a syphilitic inheritance in these unfortunates in a wide range. Some have claimed the presence of syphilis in a very small per cent, others in a very large per cent of the cases. Recent advances in medicine have made it possible to approach this problem in a much more scientific and accurate way. It has not been our purpose in carrying on this investigation to prove how much syphilis may be a cause of mental deficiency but to determine to what extent it is in association with this condition as evidenced by serological findings and thus classify with an effort to find some common characteristic prevailing in all or at least in a certain per cent of the positive cases. This study has been made upon a series of 1,050 unselected cases of all grades of mental deficiency in the Ohio Institution for Feeble Minded. The bloods of this series of cases

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have been subjected to the Wassermann test and only those bloods have been considered positive that might be made conclusive for syphilis in the absence of a history and of clinical manifestations of the disease. A positive serum reaction may be the only sign of a syphilitic infection. Linser (quoted by Bruck) examined a series of children of syphilitic patients and found that two-thirds gave a positive reaction and only one-third showed any signs of a syphilitic infection. The absence of the ordinary signs of syphilis in idiocy with a positive serum reaction is closely paralleled in the so-called parasymphilitic diseases. In the cases of juvenile paresis collected by Mott quite a large number were



Fig. 1.



Fig. 2.

Figure 1. S. G., backward, age 8; mental age 5.

Figure 2. O. M., imbecile, age 13; mental age 3. Probable parental history of syphilis. Hutchinsonian teeth. Increasing paralysis, decreasing mentality.

shown to have no signs of congenital syphilis, but nevertheless to have been born of syphilitic parents and to have brothers and sisters who exhibited the ordinary signs of the disease. It seems reasonable to believe that certain cases of idiocy might be classed with that form of syphilis which has a selective toxic action on the central nervous system and therefore has a primary causal relation to the mental condition.

If this be true would it not be advisable to make observations with the Wassermann reaction on all cases of pregnancy in which there is any suspicion of syphilis, so that early specific

treatment might be instituted? It has been suggested by Wassermann that a blood-serum test should be made routinely of every woman admitted to a lying-in hospital. Careful observation has proven conclusively that syphilis may exist in an apparently healthy person without any history of the infection or without manifestations. It is in this class of cases that a positive serum reaction is the only means of making a diagnosis.

Professor Warthin of the University of Michigan says this country is fast becoming syphilized. No one can question the authenticity of this statement, for his work in pathology is of a nature to give him great recognition. But may it not be true that



Fig. 3.

Figure 3. G. E., imbecile, age 17; mental age 5.



Fig. 4.

Figure 4. R. J., mongolian, age 16; mental age 3.

our modern means of diagnosis make this more apparent than real, that after all syphilis has long been more common than we have realized, that we are just awaking to the problem and seeing what we heretofore have failed to see? Baisch found that syphilis in women had escaped recognition in fully three-fourths of the cases, not the slightest clinical sign of syphilis being present in this large proportion of cases; yet a positive Wassermann reaction was found, spirochaetae were present in the placentae and the children showed signs of syphilis. Many cases of marked improvement are on record in which mercurial treatment was employed. However, the indiscriminate routine treatment

of all infants without a careful Wassermann test, as practiced in some clinics abroad, is not advisable. Power and Murphy found in a study of 142 consecutive cases of congenital syphilis 6 idiots. It is impossible to know whether this is a high enough estimate, for many infants with severe syphilis die so young that it cannot be determined whether they are idiotic or not.

Tredgold on the basis of clinical and pathological observation reports from one to two per cent positive. He considers syphilis more prone to produce neuronie degeneration than amentia. In most cases in which syphilis is a factor there are other factors such as neuropathic heredity.

Mott has studied for some years past the effects of syphilis, acquired and congenital, on the nervous system and arrived at



Figure 5. K. D., imbecile, age 61; mental age 2.

the conclusion that syphilis is an active agent in the production of congenital weakness and the degeneracy that accompanies it. He has demonstrated that the measure of the effects of syphilis in the production of feeble-mindedness should not be estimated only by the cases in which there are visible and characteristic signs of syphilis on the body, for mental deficiency may be the only evidence of a syphilitic infection while other members of the family may have distinct ear-marks of the disease. Mott further states that it may be thought that because syphilis of the parents produces sterility, miscarriages and abortions, its dangers

are greatly minimized, but it cannot be doubted that if the poison is sufficiently strong to kill the embryo either before or shortly after birth, it must have a devitalizing effect upon the offspring that survives. Though hereditary neurosis or psychosis greatly increase the liability of the syphilitic poison to affect the nervous system, yet in a number of cases there was no preexisting neuropathic family history; in fact, sometimes the syphilitic poison appeared to induce a neuropathic condition in the offspring. Mott also explained that the mental deficiency in some cases did not manifest itself until between eight years of age and puberty. A taint of inherited syphilis is undoubtedly a factor in many cases of mental deficiency where the external manifestations of the infection are not obvious. The most characteristic type of mental degeneration in the young associated with hereditary syphilis is that designated by Clouston, in 1877, juvenile general paralysis, in which a mental and physical breakdown occurs at the period of second dentition or at the advent of puberty, leading to a fatal issue in a few years. This condition is not as uncommon as was formerly thought, and as it is true that it is due to inherited syphilis, is it not reasonable to believe that other mental conditions may not uncommonly result from the same infection?

In a clinical study of 2,380 cases of idiocy report by Shuttleworth, inherited syphilis was traced in not more than 1.17 per cent. Hutchinson states that as the results of an inspection of the patients of Earlwood he found only a few who could be reasonably suspected of being syphilitic. Lippmann states that an examination of 121 children in the asylum for mentally defective at Uchtspringe revealed signs of syphilis in 33.8 per cent. Other clinical observers give the following percentages: Piper, 5 per cent; Hahn, 7.4 per cent; Ziehen, 10 per cent sure and 17 per cent probable; Weldermath, 11.8 per cent; Heubner, 23 per cent. F. Smith found only 1.37 per cent of his cases with marked evidence of syphilis amongst 580 inmates of the Royal Albert Asylum. Tredgold found definite evidence of inherited syphilis in 2.5 per cent and possible evidence in 3 per cent. They probably underestimate the effects of congenital syphilis in producing idiocy, for many idiots do not live long enough to reach asylums. Results reported by various observers with the Wassermann reaction are as follows: Bruchner, Kellner, Clemenz and Rautenberg found 7.4 per cent positive in a series

of 216 idiots. Raviart, Breton, Petit and others report 30.8 per cent positive in a study of 246 idiots. Lippmann found 11.5 per cent positive in 78 cases and Dalldorf 13.2 per cent in the cases he studied.

Krober found 21.4 per cent positive in 262 idiots in whom the parental history gave no absolute clue of the presence of syphilis. He was unable to find characteristic signs in the positive cases that were common to all, and hence could not consider lues a cause of the mental condition. In an investigation made in the State Serum Institute at Copenhagen by O. Thomsen, H. Boas, B. Hjorth and W. Leschly on a series of 2,061 cases of epilepsy, deaf-mutism and blindness only 1.5 per cent gave a positive reaction, and they conclude that the presence of syphilis in mental deficiency in Denmark does not justify the belief that the former plays any important part in the etiology of the latter.

Atwood of the Rockefeller Institute reports observations on 204 low grade idiots of the New York City Children's Hospital and Schools of Randall's Island; this is the only work reported in America. In this series of cases 14.7 per cent were found positive with the Noguchi modification of the Wassermann reaction. He noted that positive reactions had not disappeared at the ages of 34, 35 and 37 years and that stigmata appeared in only four of the total thirty cases with positive serum reactions. The only thing strikingly characteristic in these findings was 23 per cent positive in 47 diplegics, which suggests a causal relation other than trauma or asphyxia.

Our observations on this series of cases have been made during the last year. The bloods were secured from the ear lobe in nearly all cases and sent by express to the laboratory so that they were tested within twenty-four hours after collection. All bloods were carried through by number, of which a record was kept with the corresponding name. The serological examinations were made and reported independently of the histories and clinical findings. The original Wassermann technique was used with an anti-ox amboceptor in the greater part of the observations. It is believed that anti-ox amboceptor eliminates a possible small error due to native anti-sheep amboceptor that may be present in human sera.

We found 83 or 7.9 per cent positive in our series of 1,050 cases of all grades of amentia. We found nothing strikingly suggestive in the way of common characteristics in any clinical

class of the positive cases and are unable to formulate any conclusion that congenital syphilis acts in a definite way. Notwithstanding the well established fact that congenital syphilitics lose their antibody content with age we found a number of positives past middle life. The classification according to age is as follows:

Age (Years)	No. Tested	No. Positive	Percentage
6-10	91	9	9.8
10-20	533	36	6.7
20-30	258	22	8.5
30-40	114	13	11.4
40-50	42	2	4.7
50-60	9	0	0.0
Above 60	3	1	33.3

This classification gives nothing significant save that one case at the age of 61 years showed a positive reaction; this is much older than other observers have found the reaction positive in congenital syphilis. It shows that the specific antibody content is not markedly lost with age.

In the cases that could be classified clinically the results are as follows:

Type	No. Tested	No. Positive	Percentage
Mongolian	28	5	17.8
Microcephalic	26	3	11.0
Macrocephalic	14	3	21.3
Paralytic	26	6	23.0
Deaf	13	1	7.6
Idio Savant	1	0	0.0
Blind	6	0	0.0
Epileptic	45	1	2.2

Two of the paralytic cases seem to be progressive. This and the relatively high per cent of positives in this class make syphilis suggestive as an important causative factor. Two of the paralytics show Hutchinsonian teeth but no other ear-marks of syphilis. No definite history of congenital lues in any of these cases was obtainable. Tredgold says 80 per cent of all cases of amentia are due to a morbid heredity, which includes all forms of nervous instability as well as alcoholism, tuberculosis, syphilis, etc. Of the cases in this series showing a positive reaction 80

per cent show a morbid heredity and 40 per cent a neuropathic heredity; in 15.6 per cent of the cases the history was unattainable. 14.4 per cent of the positive cases show clinical signs of inherited syphilis. The classification of the 83 positive cases, according to the Binet test, is as follows: Idiot, 17 or 20.4 per cent. Imbecile, 40 or 48.1 per cent. Moron, 23 or 27.7 per cent. Backward, 3 or 3.6 per cent.

The eugenic theory, as advanced by Galton, which has for its object the prevention of the birth of the unfit and undesirable and the improvement of the race by encouraging the productivity of the fit and desirable is demanding the careful consideration of our profession. There are approximately 125,000 feeble-minded in the United States today, with an annual increase of 4 per cent. The cost to the state of maintaining these unfortunates approximates \$30,000,000 annually, and this, too, is increasing at the rate of 4 per cent. Add to this the loss of work which would be done by the men were they healthy and the aggregate cost would be \$45,000,000 annually. Thus feeble-mindedness becomes a great economic problem. Whether syphilis enters little or much into its causation it is proven conclusively that a large per cent of these 125,000 should never have been born. The burden of the solution of this problem rests with the medical profession.

Conclusions.

1. The great variance in the percentage of positive Wassermann reactions in amentia is probably due to two factors: (a) The class of amentia studied; (b) the character of work done by the serologist.

2. Syphilis in amentia as evidenced by the serological examinations does not generally parallel the clinical findings.

3. A history of the parentage and a clinical study of the child, in the cases found positive serologically, do not permit any definite conclusion as to the cause of the mental condition.

4. Notwithstanding the relation syphilis may have to the condition, the prevention of amentia must be met from the standpoint of heredity. "A good tree cannot bring forth evil fruit; neither can a corrupt tree bring forth good fruit."

The illustrations included in this paper are from photographs of individuals with positive Wassermann reactions. In none of these was a definite luetic history obtained and only one (Figure 2) shows any stigmata of congenital syphilis.

The X-Ray Treatment of Leukemia.

By GEO. F. THOMAS, M. D., Cleveland.

The beneficial effects of X-ray treatment upon the clinical and pathological manifestations of leukemia have been frequently demonstrated during the past decade, and in some instances were remarkable enough to lead some of the earlier observers to report their cases as cured. The rapid restoration of practically normal blood-cell ratios, the disappearance of the enlarged spleen and other distressing physical conditions, and the brilliant recovery of strength and health seemed to justify the announcement that exposure to the X-ray was a specific cure for leukemia.

Subsequent observations dispelled this belief. The apparent cures were not permanent. After variable periods of comparative health, the patients suffered recurrences and died. At the same time other observers were reporting their experiences. In some cases the X-ray had no effect at all. In others the effect was deleterious and, finally, in others the exposure produced sudden collapse and death from severe toxemia.

Considering the fact that nothing is known regarding the causative factors of leukemia, and that the nature of the pathological changes is still only a matter of theory, it is not surprising that a therapeutic agent so little understood as the Roentgen-ray should have produced such different results. Until the nature of these various causes and effects is more thoroughly understood, we cannot hope to secure permanent cures.

At present the most plausible theory is that the exciting factor of leukemia is some agent that stimulates the bone marrow to prolific production of abnormal cells. On this basis the beneficial effect of the X-ray may be a direct inhibition of this exciting factor; or an indirect inhibition through stimulation of the natural mechanisms of resistance; or, finally, a direct action upon the products of the disease, i. e., destruction of the abnormal blood cells. The data so far obtained upon this question suggest that the X-ray produces results by a combination of these actions. First, because the exposure of the spleen produces a marked reduction of the blood count, with evidence of severe toxemia if the dosage is too large. Secondly, because the blood of the patient thus Roentgenized contains bodies that can produce a

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similar reaction when introduced into the circulation of other leukemic patients. Thirdly, because the exposure of the bone-marrow alone will produce a more lasting effect than exposures confined to the spleen.

The method of treatment most generally used is that suggested by Pancoast. It is based on the conception that leukemia is primarily a disease of the bone-marrow and that the lymphatic involvements are secondary. Accordingly the treatment is directed chiefly to the bone-marrow, each part of the skeleton receiving in turn a series of exposures. The secondary involvements are treated later, when the blood picture and the patient's general health are more nearly normal. The results so far secured indicate that this method is less apt to cause a fatal toxemia and that the improvement is more marked and more permanent than that produced by confining the exposures to the lymphatic involvements.

During the past five years I have had opportunity to observe the results of X-ray treatment in six cases of leukemia of the splenomyelogenous type. Four of these patients followed the usual habit of discontinuing treatment as soon as the beneficial effect of the X-ray made them feel perfectly well and enabled them to resume their usual pursuits. The only facts of importance taught by their cases are: That under proper dosage almost hopeless cases will respond rapidly to treatment; that this improvement is marked enough to cause the patients to feel that they are practically cured; that after cessation of treatment the disease recurs; and finally, that these recurrences are also amenable to treatment, though the response is successively less satisfactory.

The history of Mrs. H., whom I have not classed with the foregoing because she has to a small extent followed my advice to continue treatments, illustrates these facts. Mrs. M. was referred to me in February, 1910, by Doctor Bowden for X-ray treatment. The patient had been under observation for seven months. The diagnosis of splenomyelogenous leukaemia was based on the general symptoms, the enlarged spleen, and the blood examination.

At the time of starting X-ray treatment, Mrs. M. was confined to her bed, emaciated and toxic. The spleen extended to the right of the umbilicus. The blood count showed: red corpuscles, 3,200,000; white corpuscles, 450,000; myelocytes, 27 per cent. The improvement under radiation was immediate. Her appetite returned, her color improved, the spleen decreased in size and in three weeks the patient felt well enough to leave the hospital.

In two months (i. e., in April, 1910) the blood examination showed: red blood corpuscles, 3,968,000; white corpuscles, 176,000; myelocytes, 13 per cent. The patient felt cured and refused further treatment. Eight weeks later she returned and the blood count on July 7th showed 422,000 white corpuscles. X-ray treatment was again instituted. My records show the following reports: August 2nd, white corpuscles, 210,000; "clinically much better; edema of the ankles much less; feels strong and well." August 30th, white corpuscles, 64,000. September 27th: red blood corpuscles, 4,000,000; white corpuscles, 54,000; hemaglobin, 75 per cent; the patient feels fine. She began to miss treatments and finally stopped for six weeks. January 19th, 1911, the count showed 123,000 leukocytes. Treatments were recontinued and the patient gradually improved again. During March she appeared for three treatments, during April for two, during May for two, and from June 1st to 15th for three. At this time she was feeling fine; a blood count was refused. From June 15th to July 20th no treatments were received. She took a vacation and contracted enteritis. She became alarmed at the increasing size of her spleen, edema of the feet and loss of appetite. She tried Christian Science, but appeared again for treatments in the latter part of July; no blood count was obtained. During August and September she appeared for two treatments per week, with a gradual improvement in her condition. In October the spleen was smaller and the patient felt well; at this time the blood examination showed 3,300,000 red corpuscles, 170,000 white corpuscles, hemaglobin 80 per cent. During November and December she continued to feel strong and well and in January, 1912, desired to cease treatments. During February she appeared only occasionally and at the time of the last treatment she claimed to be feeling perfectly well.

The report of another case in which the treatments were continued over a long period of time is as follows:

Mr. E. W., aged thirty-two years, married, referred by Doctor F. W. Davis, was admitted to the hospital on October 19th, 1908. The family and personal history were negative. The present illness began in October, 1907, when the patient noticed that his abdomen was growing larger, especially on the left side. Eating produced a feeling of excessive fullness. Slight exertion caused undue shortness of breath. Early in 1908 he consulted a physician on account of an attack of dysentery. He called the physician's attention to the spleen, but the real nature of the disease was not diagnosed. About March, 1908, he consulted Doctor F. W. Davis, who made the diagnosis of splenomyelogenous leukemia and put him on the usual treatment of arsenic in increasing doses. During the succeeding months he suffered the effects of pressure from the enormously enlarged spleen, namely: shortness of breath; edema of the lower extremities; frequent micturition and almost continuous priapism.

The physical examination made at the hospital in October showed the patient to be emaciated and cachectic, with distended abdomen and edematous lower extremities. His pulse was weak and rapid. The spleen extended into the pelvis, and about three finger breadths to the right of the umbilicus. All lymphatic glands were slightly enlarged. The blood count

on October 19th, 1908, showed: red blood corpuscles, 4,500,000; white corpuscles, 560,000; myelocytes, 37 per cent; nucleated red cells were also present. X-ray treatment was started immediately.

The chart below gives an idea of the progress.

	White corpuscles	Hema- globin	Poly- nuclears	Myelo- cytes
		Per Ct.	Per Ct.	Per Ct.
10-19-08	560,000	70	33	37
10-23-08	468,000	70	32	27
10-28-08	370,000	70	32	27
11-1-08	272,000			
11-3-08	180,000	75	58	12
11-8-08	140,000			
11-17-08	125,000			
11-22-08	130,000	75	65	9
11-27-08	120,000		Left Hospital.	
12-11-08	95,000	85	70	5
12-24-08	80,000	Resumed his occupation		
2-14-09	54,000	95	67	5
3-5-09	36,000			
4-4-09	28,000	90	70	1
5-4-09	22,000	95	70	5
7-29-09	18,000	95	73	1
11-30-09	14,000			
2-5-10	12,000	90	70	1

The patient left town in February, 1910, and was absent for ten months, during which time he continued his X-ray treatments. Not satisfied with his progress he returned to me in December; on the 15th of this month the blood examination showed: white corpuscles, 110,000; polymorphonuclears, 60 per cent; myelocytes 27 per cent. Subsequent enumerations of the white blood cells resulted as follows: 3-10-11, 73,000; 4-25-11, 55,000; 6-8-11, 38,000; 9-25-11, 148,000.

During most of these three years the patient felt strong and well and continued his usual occupations with the exception of his last few weeks, and the short time following his absence from my observation. He died the latter part of September, 1911, from an acute recurrence, which I was unable to control with the X-rays.

In none of the cases treated were there any untoward results of Roentgen radiation, such as toxemia or X-ray burns.

From the experience and conclusions of other men, and from my own observations, the following conclusions seem justifiable:

1. X-ray treatment is the best therapeutic agent so far suggested for leukemia, the least dangerous, the most uniform, and the most permanent.

2. The Pancoast method is the most rational and most successful form of X-ray treatment.

3. Under favorable conditions the leukemic patient may be restored to comparative health in a few weeks and his length of life increased by a period of three to six years.

4. During this period of increased life he is comparatively free from distressing symptoms.

It is not beyond the range of possibilities that a therapeutic agency, having so profound an influence as the X-ray upon not only the disease products but apparently also upon the etiological factors of leukemia, may eventually be enabled either alone, or in conjunction with some other therapeutic procedure, to effect a permanent cure of leukemia, when the exact nature of the etiological factors is determined.

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An Appreciation of Doctor Gustav C. E. Weber.

By JOHN H. LOWMAN, M. D., Cleveland.

In the early days of the Civil War an officer was in Kentucky, eagerly commandeering medical supplies to take to the front. Arriving on the field of a recent battle he saw much miscellaneous operating by excited young surgeons; one of them he ordered to desist, as the limb did not require amputation. "By what right do you interfere?" replied the surgeon. "By the authority of the State of Ohio," came the answer. The officer was Weber, the most picturesque figure in the annals of medicine in Northern Ohio. By the study and practice of the old methods he had become a keen and rapid operator in times when there was safety in speed. Thence on, by gradually and cautiously adopting new methods he became a finished surgeon of the modern type. He was thus a master in two eras. He grew with science, and most interestingly could he unfold the developments of certain operative procedures. He passed through all the stages of laparotomy and vesical fistula, and was almost mobbed on account of one of his earliest hysterectomies because of the unreasoning bitterness of some of the medical intransigents. We depend on records for history, which becomes not only narrative but critical and philosophical because of its limitations, but the surgeons in the seventies lived history. Books were old before bound; no one but the most diligent knew whether he followed the latest methods. The last operation was already history, the next involved new discoveries. The men who came to that decade ripe, mature and ready were indeed fortunate. They were present at the birth of great events and that is what made many of them great. Drink at the source of

the spring if you want the water pure. It was not only in the seventies that Weber got inspiration, but in the fifties as well, when, as a student, he roamed the capitals of Europe. Paris at that time was the center of almost everything. The Vienna faculty was at its glorious apogee and Holland still reflected the brilliancy of her old masters. Most charming was it to while the time away with Doctor Weber and listen to his *schwärmerei* and anecdote, for he was an idealist as well, and loved to dream and recollect. Princely in hospitality, winning in manner, generous in thought and impulse when the mood was on, for he had his moods, he was a most delightful companion.

Born in Germany he came to Cleveland in the year 1856, in his twenty-eighth year, as Professor of Surgery. At that early age he was master of his profession, and so rapidly did he gain general recognition that in five years he was appointed by Governor Tod Surgeon General of Ohio and given special privileges by Stanton, the then Secretary of War. This early success was, however, preceded by a long preparation, for his was by no means the ordinary superficial student experience of the middle of the last century. Far from being superficial it was long, rich and arduous. His associates and teachers were men of high attainment and his opportunities manifold and unusual. His boyhood home at Bonn was an intellectual center, where Jean Paul Richter occasionally came. His mother was a von Podowilz, a woman of decided literary attainments and strong womanly qualities. His father was M. I. Weber, Professor of Anatomy, the author of several books and atlases. He was called to Bonn from Landshut, before the latter university was incorporated with Munich, because of his distinguished ability and together with other great lights formed the first faculty there. Professor M. I. Weber was known for his vivacity of temperament, as well as for his learning, and every summer was a favorite figure at Baden Baden in the days of its greatest gaiety, always giving his winnings to the boys at the casino and hotels when he left. Much of his natural charm reappeared in his son. Gustav's time as a boy was passed in roaming up and down the banks of the Rhine, every spot of which in the neighborhood of Bonn he knew well, but study had not many charms for him. An old gymnasium teacher, returning after an absence of a few years, said on meeting him, "Oh! you grinning youngster when do you intend to work?" He continued to intersperse

his desultory studies at the gymnasium with long pleasant rambles until he entered the university as a *mediciner*. Even then his brother Edward, who had a much more serious turn of mind, vowed that they could not make much out of him.

Early in his first year at the university a suspicion by the government that he was interested in the revolution of '48 and a hint to his mother of this fact led to his leaving Bonn one night suddenly for Munich, where he remained a short time with his uncle von Walther, an ophthalmologist. Thence he went to America, to St. Louis, where he continued his medical studies and graduated. There the taste for anatomy was awakened in him and he made among other things an extensive dissection of the superficial veins of the human body as a museum specimen.

Dissatisfied with his opportunities in Missouri he returned a year after his graduation to Europe and went to Vienna, where he found a generous protector in Karl Braun, an old friend of his father. He practically lived in the hospital with Braun for a year. This was the era of Skoda, Opholzer, Hyrtle, Hebra, Rokitsansky, and Arndt, the men who made the Vienna faculty so distinguished at that time. One day, on going to begin work with Arndt, the latter remarked of a young man who was leaving the house, "You will hear great things from that young man some day." It was of von Graefe he spoke. Graefe was just leaving for Germany, where he was to have so illustrious a career. The life in Vienna was Weber's first great inspiration and there his fixed purpose was formed.

As the boy Gustav was amusing himself on the hills about Bonn he met a prominent Hollander who was there on account of the health of his daughter. The boy showed them many of his pleasant haunts, and when they parted the distinguished stranger gave him a ring and invited him to Amsterdam where he was sure he could do something for his young friend. So when the time came to leave Vienna, Weber went to Amsterdam, especially as Germany was not open to him; here he found his old friend, and by his assistance became interne in the great Out-of-town hospital there. This was a general hospital with a strong medical service. The surgical department was less important, but the treatment of lues received particular attention, as Holland was one of the few places where careful inspection and restriction of the disease were enforced. Weber always recognized the great value of the life there for him, for it was

there where he obtained his especial training as an internist. The Dutch physicians were highly esteemed and articles translated from the Dutch were received by the German periodicals with great satisfaction. The editor of a Marburg journal was particularly enthusiastic over their work. Preis von der Hofen was the inspiring genius in the low countries at that time and was often at the hospital. One hardly need comment how the experiences young Weber was daily having in Vienna and Amsterdam would affect any young man. And these were to be repeated the next year in Paris.

There, through the maneuvers of young Heyfelder, a son of a former physician to the court, he was introduced with some temerity and without the professor's knowledge to Roux's clinic. The old man quickly recognized the new face and instantly demanded explanations, and when he found the newcomer to be the son of Weber of Bonn he welcomed him, introduced him to his class as the son of the most distinguished anatomist of the day, invited him to his wards and to his home. From that time on Weber followed Roux and was often at his house. Roux had married the daughter of Baron Larry, Napoleon's great surgeon; Danyeau, the obstetrician, had married Roux's daughter; thus the Roux house was a distinguished center. Roux was legitimist in politics and a life senator, and was frequently courted by Napoleon. He held the first service at the Hotel Dieu and to be daily with him was a stroke of fortune. It was in Paris that Weber first knew that he was to be a surgeon. These were the days of fierce conflicts between the lithotritists and lithotomists. Roux hurled sarcasms on the crushers and tried to prove his position by exhibiting bushel baskets full of calculi whenever he had a stone case to operate. The air was electrical with rapid movements and counter movements. Every one expected something new, interesting or startling in the state, on the stage, or in the small whirlpools of smaller groups. Jobert de Lamballe had fallen and been relieved of his function as physician to the Empress, had suicided in consequence, and been substituted by the young, brilliant surgeon, Nelaton, who detected the bullet in Garibaldi's ankle. The life in the *Quartier Latin* Weber never forgot. Indeed, who that has lived there even for a short time can forget it? Weber now was studying English, as was also Roux's granddaughter; and old Roux, fierce, grizzly, impetuous, used to tease them unceasingly over

their pronunciation. In fact, Roux must have been a great rogue. At his receptions, to which every one went, he would say to the new nobility as he stroked a new coat, "What wonderful velvet, what gold lace; never was such velvet seen in France until the second Empire." Napoleon occasionally visited the Hotel Dieu and would go with Roux, but to the old man the Emperor was to the last a *mauvais sujet*.

From this atmosphere, from these associates, from these masters, from the very aristocracy of medicine, Weber went to New York. His brother Edward had preceded, had become a pronounced success and was then surgeon to the emigrant hospital. He was the first man to remove the superior maxillary bone in America and had done much good work, but the familial disease, tuberculosis, claimed him. Weber took his place, married there, and practiced there for three or four years until his friends, Leidy and Stephen Smith, induced him to leave, lest his brother's fate overtake him. Going west, he heard in Detroit of the position in Cleveland just made vacant by the resignation of Ackley, and, through the mediacy of Leidy, secured it. The Webers were most kindly received and soon had a warm place in the hearts of the citizens; a place which they never lost.

The surgical clinic had declined, but Weber, having secured a place in the infirmary, brought 'bus loads of patients to the college every Wednesday and operated in the general amphitheatre. He could not, however, rest without a hospital, and after the war had ceased and his health, which had been seriously threatened by his service during the war, had returned, he inspired the building of the first great hospital here. His wife directed a fair for it that yielded some thousands of dollars; all classes of citizens united in pushing the project, and Charity Hospital arose and will always remain a monument to him. In 1864 he left the Cleveland Medical College and organized a new one. His prestige as Surgeon General drew numerous students; classes were large from the beginning and the school continued to be an independent, successful educational institution until it united with the older college in 1880. It was through Weber's intimacy with Mr. J. L. Woods that the first great contribution was made to medical science in Cleveland. The donor said to the writer that his thought had been turned in that direction through his affection for his physician. Thus two monu-

ments will endure to crown the memory of Doctor Weber. Only a few can equal that service.

Doctor Weber came to his full development in the latter sixties, when he was about forty years old, but his ripest period was from his forty-fifth to his fiftieth year. It seemed as if no critical illness in Cleveland was allowed to pass at that time without his inspection. He was called in serious obstetrical complications, in grave medical cases, in ophthalmological operations as well as in his own immediate department of surgery. His judgment was good in all departments of medical science. He was, moreover, a generous, helpful and resourceful consultant. As an operator he was well equipped, his armamentarium was very extensive, his preparation of the patient careful, and his survey of the general situation wide and searching. On his first coming to New York he was an ardent lithotitrist. He had brought a full complement of Segalas' instruments and wanted to use them. Stephen Smith invited him to operate before his class in the old New York hospital on Broadway. Weber took his position by the patient but failed to find the stone. After manipulating as long as he thought safe for the patient he desisted and, turning to Smith, said he must give it up. Smith complimented him heartily on his judgment and immediately gave a talk to his students on knowing when to stop. The recollection of this occasion was always a sweet morsel. Weber's judgment was evidently good from the beginning. Up to the days of bloodless operations and asepsis, judgment had to be swift and unerring. Not every one could be a surgeon then, the pitfalls were too numerous and the responsibilities too great. Weber's dissection was clean and rapid. He made no blunders. He operated with a wide field and constantly enjoined having plenty of room. He was rapid and painstaking and complete. He had a mechanical eye and was singularly accurate in his plastic work. Harelip, rhinoplasty, chilooplasty were favorite operations with him. He always had good flaps and rarely left much surface for granulations. In the twenty-five years of his great activity he performed almost every operation known to surgery. The mortality of his early laparotomies was fully twenty-five per cent. This was indeed the case in many hospitals and did not improve much until antisepsis was introduced. His other work would compare very well with that of today in its results. His subsequent

attention and supervision was most careful, due probably to his wide medical training and resourcefulness.

Weber was an intensive surgeon. His whole thought was concentrated on his work. Very seldom was he led away from it. He was the artist that Billroth said every physician and surgeon should be. He could see in imagination his work as he approached it. Yet with all his skill—he was ambidextrous as well—with all his experience and learning, his work was not easy. He not infrequently approached an operation with solicitude, and did not hesitate to admit this fact to his students. His scientific ideals were very high and he thought no one should seriously undertake the extensive practice of surgery unless prepared by character and training. As a teacher he did not realize the value of the essentially mechanical parts of the science. Perhaps he did not recognize the importance of the place of the plodding surgeon. There are very many things that a young man who has studied and worked under the eye of an experienced operator can do well; judgment will come with increased experience, and increased usefulness with better judgment. Many good surgeons have begun with systematic anatomical studies and minor surgery. Weber, in his lectures, dwelt on the wider problems, on the development of surgery, on its historical aspects, rather than on the commonplace details. He should have had an understudy for the preliminaries; he had neither the time nor the temperament for them, nor the school organization for carrying them out. His students in consequence lacked the courage that comes from prolonged technical training. They were not sufficiently automatic in nonessentials. At the same time they acquired an ultraconscientiousness that was inspired by the word of the master; two things that were fatal to daring and restrained a rapid progress. Weber had no *sang froid*, he was never reckless. His feeling, warmth and almost feminine tenderness were against it. He had not the brilliancy of incompleteness, which is really a slight lack of balance, but rather the perfection of completeness. While he enjoyed some particularly brilliant turn of an operation, his was an artistic rather than a vain appreciation. He always avoided dash and meretricious methods, and would tell the story of Blackman's amputating the shoulder joint with two strokes of a knife on the battlefield of Pittsburg Landing. Weber examined the amputated arm and found that there has been a resection of the joint at some

previous time. He claimed that brilliancy had to have some such luck behind it to be safe.

He started the first medical journal in Cleveland, but he never contributed much to medical literature. Had he done so he would have had a more enduring fame. He used to make the above statement of Delamater, whom he regarded as the greatest diagnostician he had known. He had a distinctive professional manner and believed somewhat in the oracular methods. This was the late surviving relic of the sixteenth century, when physicians wore red robes and wigs, carried canes with scent bottles in the heads to counteract malevolent humors, and talked mysteriously in guildic Latin. He thought the physician should be the physician at all times and in all places. He believed the doctor should never lay down his aegis. He had a bit of the occult in him and had experienced many very odd coincidences. There was in him a subtilty, a perfect commingling of affability and reserve that produced an indefinable manner which with his evident consciousness of power gave him great strength. His method in the sick-room was admirable, and his respect for the individual rights of the patient very notable. His conclusions were couched in clear and simple terms and, although he retained a little of his German accent, he had an extraordinary facility in selecting the right word to express his thought. His methods, manner, bearing and reflections were built up around his medical ideals; thus he was lost in the transitional movements of the last two decades. He remained individualistic and felt that in personal development lay the most secure benefits. Some of the later deviations from altruism would seem to point to his idea as the true one. His faith was in democracy but his personality was aristocratic.

In 1898 he retired from the active practice of surgery, which he had gradually been relinquishing, and became consul in Nuremberg, where he remained four years. On his return in 1903 he was tendered a banquet by the Cleveland Medical Library Association, to which he gave his books and instruments. It was on that occasion that he had a stroke of apoplexy that paralyzed his right side. From then on he spent his declining years at Cosey Bank, his home in Willoughby. The chance visitor would always find him in his favorite corner looking out over the veranda into the trees, many of which he and his wife had planted. There he sat a decade long, growing in sweet-

ness with no repining, with no complaints, quietly contented with his home, with occasional friends and pleasant thoughts. His old charm and manner never left, and with all his infirmities and with all his years he never seemed old. He often said he was only waiting, but waiting did not seem to make him weary. His end came in his eighty-fifth year after an attack of influenza and was simply a quiet slipping away into eternity.

1807 Prospect Avenue, S. E.

The Causes of Perforation of the Nasal Septum.

By W. B. CHAMBERLIN, M. D., Cleveland.

The discovery of a perforation in the nasal septum is taken by many members of the medical profession as *prima facie* evidence of the existence of syphilis, congenital or acquired. That many innocent individuals are accordingly made the victims of the odium attached to this disease, and subjected to long periods of antisyphilitic treatment is certain. So it has seemed that a review of the causes, other than syphilis, which may lead to septal perforation, with emphasis on some few points in the differential diagnosis, might not be without value. According to Ballenger 60 per cent of all perforations of the septum are due to perforating ulcer.

Syphilis is without doubt a frequent cause. There are other causes of sufficiently frequent occurrence to merit consideration and to necessitate careful examination and differentiation before a diagnosis is arrived at. Among such causes may be mentioned tuberculosis, haematoma and abscess, and, last of all trauma. Congenital perforation has been described by a few authorities. As the differentiation between these various causes depends first of all upon an accurate knowledge of the nasal septum, a review of its anatomy may be necessary.

The framework of the septum is composed of bone and cartilage. The bony portion lies in general posteriorly and superiorly and consists of the perpendicular plate of the ethmoid and the vomer. The cartilages are two in number, the quadrangular and the triangular. Posteriorly the quadrangular cartilage articulates with the perpendicular plate of the ethmoid, in-

feriorly with the vomer. The triangular cartilage forms the anterior inferior part of the septum and articulates with the quadrangular posteriorly, and inferiorly with the vomer.

Syphilis of the nose attacks most frequently the bony septum, though the cartilages may be involved coincidently with it. A syphilitic perforation limited to the cartilaginous septum is, according to Zarniko, among the greatest rarities. The forerunner of the perforation is of course the gumma. Gummata of the septum, if untreated, necrose early with accompanying discharge of necrosed tissue and bony sequestra, often of large dimensions. It should not be forgotten, however, that we may have a typical saddle nose deformity with no perforation of the nasal septum, due to contraction from fibrous tissue formation following active antisyphilitic treatment. On the other hand a large defect in the septum, involving both bone and cartilage, may give no outward sign of its existence.

Nasal tuberculosis is a fairly unusual affection; not so unusual, however, as the published cases might lead one to conclude. The reason is no doubt due in many cases to a failure to examine the nasal fossae. The writer reported two such cases at the recent meeting of the Ohio State Medical Association. In each the presence of a pulmonary tuberculosis was suggested by the nasal findings. The nasal mucosa and its framework, unlike other portions of the upper respiratory tract, most notably the larynx, seem especially immune to tuberculous infection. When one remembers that the inhalation of contaminated air undoubtedly plays a large part in tuberculous infection and that the nose is the first portion of the upper respiratory tract with which this air comes in contact, this immunity is indeed striking. Tuberculosis involves first of all the cartilaginous septum, though the process if unchecked will involve later the bony septum as well.

Perforating ulcer attacks only the cartilaginous septum, never the bone. Observed after healing has taken place, we see a defect in the cartilaginous septum, round or oval in form, with sharply cicatrized and uninfiltreated margins. It usually lies immediately within the vestibule. Perforating ulcer is most frequent among workers in paint and cement factories or among those whose occupations subject them to the more or less constant inhalation of irritating and dust-laden air. Crusts of dirt

collect on the septum just within the vestibule. These crusts soon become irritating and are accordingly removed, usually with the finger nail. The result is a superficial abrasion, and in time an ulcer, from which a perforation ultimately results. Hajek's description, as given by Zarniko, is so concise that I quote it more or less fully.

(1) At first one finds a round spot on the mucous membrane, covered with a dirty, gray, spider-web-like crust, more or less adherent. After its removal there remains a superficial sore. The surrounding mucosa may be more or less inflamed.

(2) There results a clean-cut sore with sharp margins, its center much deeper than the remaining parts.

(3) The cartilage is laid bare, is dirty gray, uneven. The edges of the ulcer are undermined.

(4) The denuded cartilage is perforated only in the center, the perforation being smaller than the sore. We observe two terraces, the outer formed by the mucous membrane, the inner by the cartilage. The already undermined mucous membrane of the opposite side forms the base of the perforation in the cartilage.

(5) The mucous membrane of the opposite side necroses. The perforation is complete.

(6) The margins of the perforation become clean and heal. There remains a round or oval defect with smooth, sharp edges.

In addition to the local cause Richardson believes that there must be some underlying predisposition due to malnutrition. The history of a case recently observed is fairly characteristic.

The patient, a housewife, sixty years of age, some seven years ago, following an abdominal operation with a subsequent period of long detention in the hospital, first noticed a crust formation on the anterior part of the septum. This crust caused considerable obstruction and irritation. Its discharge was always followed by slight hemorrhage. Three years ago the patient first noticed by accident that there was a hole through the septum. At present there is an oval perforation 1 by 1.5 cm. in diameter lying extremely anteriorly and entirely within the cartilaginous septum. The posterior margin of the perforation is slightly ulcerated from the collection of crusts of dirt from the

inspired air. There is slight bleeding when these crusts are removed. Otherwise the margins are firmly healed and intact. In this case the impaired vitality due to a severe operation was undoubtedly a predisposing factor.

Trauma may also play a part in the causation of defects of the nasal septum. The savage perforates both the nose and the ears in order to increase the possibilities for personal adornment. Modern society, probably on account of inconvenience in eating, has placed the wearing of pendants from the nose under the ban, though it still clings fondly to the wearing of ornaments in the ears. So septal perforation from such causes may be disregarded. But with every medical student at the present time an embryonic surgeon and almost every periodical containing some article on the submucous resection of the nasal septum, the possibilities of trauma in the causation of septal defects should not be overlooked. That perforation from this cause will occasionally result in the hands of the most skillful operator is undoubtedly true. That it will result more frequently in the hands of many who are today attempting this operation is certain. A visiting nurse to the Cleveland public schools recently remarked to the writer that if she looked in a child's mouth and noted the absence of the uvula she knew that an enucleation of the tonsils had been attempted. So a defect in the septum may be but mute evidence that an attempt has been made to do a submucous resection. Let it not be mistaken as an appeal for antisyphilitic treatment.

Hematoma with subsequent abscess formation not infrequently leads to perforation. In such cases there is often marked external deformity. Usually the history is fairly characteristic, while the perforation is larger, irregular in shape, with more or less uneven edges.

Given then a perforation in the nasal septum with healed and firmly cicatrized margins, how shall we decide whether or not such a perforation is syphilitic? The differential diagnosis will depend upon whether the defect involves bone, cartilage or both. With the overlying mucous membrane intact how can we decide whether bone, cartilage or both bone and cartilage are involved? The rule of Zuckerkandl is as follows: The point of junction between the perpendicular plate of the ethmoid, the quadrangular cartilage and the vomer represents one-half the distance from the anterior nasal spine to the anterior surface of

the body of the sphenoid. A probe passed through the anterior nasal spine and approximately the middle point of the middle turbinal must reach the anterior wall of the sphenoid. A perforation, any part of whose margin lies beyond one-half this distance must involve the bone. A perforation all points of whose margins lie within this distance must involve the cartilage alone. It can readily likewise be determined if both bone and cartilage are involved.

To recapitulate: Syphilis of the septum involves primarily the bone, occasionally cartilage; almost never cartilage alone. Tuberculosis involves primarily the cartilage, the bone secondarily if its progress is unchecked. Perforating ulcer involves only the cartilage, never the bone. The location of a traumatic perforation from operative interference may involve any portion of the nasal septum.

614 Osborn Building.

Report of Two Cases of Injury to the Eye by Pieces of Steel, One a Double Perforation.

By CHARLES C. STUART, A. M., M. D., Cleveland.

The history of the first patient, E. P., which is presented for consideration, is as follows: He received an injury to the left eye just a short time before quitting work on the afternoon of May 18th, 1910. He was hammering a piece of steel and a chip flew off and did the damage. He is a healthy young man of 19 years of age. The patient was seen next morning and the description of appearances is as follows: There is seen a small perforating wound of the cornea just below the pupillary area; it is *horizontal* and from one to two millimeters long. A *vertical* tear of the anterior lens capsule is seen just back of the corneal wound and it extends just to lower edge of the iris. The lens is becoming cataractous; the view of the interior of the eye is imperfect, only the disc and a few vessels being hazily seen. There was no view of the foreign body. The eye was tried with a magnet and the result was negative. Radiographs were made and the patient was sent to Charity Hospital.

Next day, radiographs located a foreign body in the eye

Read at the meeting of the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, Friday, March 22, 1912.

twenty millimeters behind the cornea, nine millimeters below the antero-posterior line and almost in the vertical plane. Under general anesthesia the conjunctiva was dissected down and out, the sclera was opened and at the second application of the magnet the foreign body was removed. There was no escape of vitreous and three sutures were placed in the conjunctiva. Healing took place kindly and the patient soon left the hospital. As was said before, the lens was partially cataractous when first seen and soon became completely so. In December, 1910, or seven months later, a needling operation was performed upon the lens. Absorption took place rapidly, leaving a dense capsule. In April, 1911, the capsule itself was needled as can be noted on examination of the eye, and following this, there was a marked reaction but by the end of the first week in May the eye was very quiet. There is one adhesion of the capsule to the lens seen down and out, but this is not due to the reaction of the needling but has been present since the beginning of the injury.

Since it was possible to make any tests of vision they have been made at various times with no good result. By adding $+10^{\circ} = +1.50^{\circ} \times 180$, vision was 3/40. At the last examination the first of this month, by the ophthalmoscope, it is possible to see very hazily a black mass lying out from the disc and on or near the macula; this mass is vertically oval; no areas of atrophy are seen. Whether this black mass is the remains of a blood clot I am unable to say. This case is interesting as bringing up the question as to how good results can be expected from the extraction of foreign bodies deep in the vitreous and how much operative interference should be resorted to, to help in the restoration of vision.

In 1909, W. M. Sweet presented to the American Ophthalmological Society a paper embodying the results on a series of 282 cases which were referred to him for radiographs. Of these 282 cases, 125 were negative, leaving a balance of 157 which were positive in their findings. The locations of the foreign bodies in the deep structures of the eyes were as follows: In the ciliary region, 12; near the equator, 52; posterior part of eyeball, 48. The visual results on all 157 cases are: Vision 6/12 or better, 17; vision 6/15 to 6/60, 11; hand movements, 12; light projection, 15; light perception, 9; no light perception, eye of normal size, 2; eyeball shrunken, 3.

In other words, there was a preponderating number of cases where the result is hand movements or less (41 cases) to visual results of 6/12 to 6/60 (28 cases).

Some of his conclusions stated briefly are: "Two causes stand out prominently as contributing in a large measure to the loss of eyes injured by foreign bodies: First, the period elapsing between the injury and the removal of the body; and second, the size of the metal entering the globe." Again he says, "Few eyeballs recover from the violent concussion of large pieces of steel." As to the relative merits of the large or Haab magnet and the medium-sized magnet, he says, "I believe extraction through a scleral incision, especially if the case is not seen immediately after the injury, to be a safer procedure, and I do not recall an instance of detachment of the retina occurring at the point of the scleral incision. If the medium-sized magnet fails to remove the foreign body, even if the giant magnet succeeds, the eye is apt to be ultimately lost from iridocyclitis."

Case II. Double perforation.

A young man, L. B., twenty-three years of age, was struck in the right eye about 2 p. m. of August 10th, 1910, by a small piece of steel from a hammer blow. He was seen the next morning and the condition then was as follows: There is a perforating wound in the conjunctiva in the upper, outer quadrant near the corneal limbus; the cornea and iris are quiet and the latter structure responds quickly; there is slight injection about the wound. The pupil was dilated with atropin and the lens found clear; in the vitreous is seen much floating opacity, both of shred opacities and that of the fine dust variety. In the upper outer quadrant, the appearance is that of shreds dangling from fastenings. The disc and a few vessels are visible.

A radiograph taken next day showed a foreign body lying behind the eyeball, one by one by one millimeter in size. Fearing a chance of infection, no attempt at extraction was made for two weeks, when, on the 25th, or two weeks after the injury, under cocain anesthesia, an incision was made in the conjunctiva, Tenon's capsule was perforated, and extraction of the foreign body with the magnet attempted. The result was negative. Meanwhile the interior of the eye continued to clear up and slowly began to show the scar of the wound of exit. This was a slow process on account of the immense amount of vitreous

opacity and it was well into September before it could be clearly seen. At this time the vision of the right eye was 6/10. A second radiograph, taken September 28th, showed the foreign body in the same position as before and a second attempt was made under general anesthesia to remove the foreign body. This also was not successful. On October 24th the vision of the right eye was 6/8. On April 26th, 1911, vision of the right eye was 6/5. The ophthalmoscope shows the fundus to be clear; there is an area of atrophy way out and slightly up from the disc; it is horizontal and has retinal vessels on its upper edge and two small choroidal branches in the area.

Sweet states that double perforation of the eyeball by splinters of iron or steel is rare as compared with double perforating injuries of the eyeball with small shot or particles of exploded dynamite caps on account of the impelling force being so much greater in the latter form of cases. He reported a series of double perforation by iron or steel to the American Ophthalmological Society in 1907 and divided his cases into two groups, (a) those in which the radiograph showed the body to be lodged in the posterior scleral wall with a portion of the metal protruding through into the orbit, and (b) cases in which the metal had passed completely through the eyeball and was lodged in the orbit. In series (a) are reported nine cases in which enucleation was performed in seven cases and two passed from observation. In series (b) are reported thirteen cases with enucleation performed in five, good or fair results in six cases, one had retinal detachment and one passed from observation. A study of each case makes it evident that a good outcome is only to be expected when the foreign body is very small as was the case which I here report.

105 *Lennox Building.*

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EDITORIAL

The National Conference of Charities and Corrections.

Cleveland will soon have the privilege of entertaining the first of several organizations of national scope, dealing with matters of sociological and of scientific import, which are to meet here during the next few months. During the week of June 12 to 19 the Thirty-ninth National Conference of Charities and Correction will be in session. Certain of the activities of the Conference relate to subjects in which the medical profession has a direct interest. In the remainder of the program the physician must be interested as an intelligent citizen. In the general session of the Committee on Children, under the chairmanship of Sherman C. Kingsley, Director of the Elizabeth McCormick Memorial Fund, Chicago, the aim will be to indicate the necessity

of a program that takes into consideration the needs of child life in city and state. In the Committee on Families and Neighborhoods, of which Rev. Dr. William J. Kerby, of the Catholic University at Washington, D. C., is Chairman, there are to be discussions upon "The Maintenance of the Individuality of the Family," "A State Program in Organized Charity," and "Cooperation Among Relief Agencies," the latter by James F. Jackson of Cleveland.

The Committee on the Relations of Medical and Social Work, of which J. Alexander Miller, M.D., of New York, is Chairman, this year for the first time has a place of its own upon the program. The work of this Committee, the result of the interrelation and interdependence of many social and medical problems, will be of extreme importance to the physician. The Committee has been divided into seven sub-committees that are to consider the medical and social interrelations of the following: Hospital Social Service; Visiting Nursing; Industrial Diseases and Accidents; Infant Mortality; Blindness; Insanity and Epilepsy; Important Social Diseases (Tuberculosis, Syphilis, Hookworm Disease and Alcoholism). In addition there will be an address by Richard C. Cabot of Boston, dealing with the educational needs of doctors, social workers and the public for a better understanding of their mutual problems.

The meetings of the Committee on Housing and Recreation, under the chairmanship of Joseph Lee of Boston, will be timely in view of the endeavors of the local Board of Health in the regulation of tenement house evils and of the Chamber of Commerce for better playground facilities. The Committee on Public Supervision and Administration, of which H. C. Bowman, member of the State Board of Control of Kansas, is Chairman, will discuss, among other things, the extent to which the state should supervise and control the following private institutions: Those receiving state aid; those caring for the insane; those for the care of dependent children; and those of any kind which solicit financial support throughout the state. The Committee on Standards of Living and Labor, Owen R. Lovejoy, General Secretary of the National Child Labor Committee, Chairman, takes up a number of hygienic problems, such as Regulation of Night Work for Women and Minors; the Abolition of Child Labor; the Hazard of Labor in Coal Mining and Other Dangerous Occupations. The Committee on Immigration, under the

chairmanship of William Jay Schieffelin of New York, will consider those problems relating to the immigrant after he has been received into the country.

The Committee on Sex Hygiene, of which Charles W. Birtwell, Secretary of the American Federation for Sex Education and Hygiene, is Chairman, plans to present its subject from the standpoint of the educator and the physician and will consider the various ways in which information concerning sex hygiene may be disseminated among the laity. One section meeting will be occupied with the relation of boards of health to sex hygiene, and another with eugenics and sterilization. The Committee on Courts and Prisons, Bailey W. Burritt, New York, Chairman, is planning a program whose aim is the injection of a spirit of social work into the work of the inferior courts.

In addition to the meetings of the National Conference itself and its sections there will be meetings of a number of associations affiliated with the Conference. The National Conference on the Education of Dependent, Truant, Backward and Delinquent Children will be held June 10, 11 and 12. The Conference of Jewish Charities meets from June 9 to 12. The National Probation Association convenes on June 11, and the National Association of Societies for Organizing Charity on June 12. There will be held also the third annual conference of the National Association of Public Relief Officials and a semi-annual meeting of the Commission on the Church and Social Service of the Federal Council of the Churches of Christ in America.

It is evident that many lines of sociological and hygienic endeavor are to be considered. Detailed programs will be presented later so that the individual physician will be in a position to select those meetings in which he is more immediately interested.

Therapeutic Improvement.

The following clearly sets forth in what manner the pharmacists' efforts to replace proprietary nostrums by similar mixtures of the pharmacopeia and the National Formulary fall short of the medical profession's aims toward a more rational use of medicines (*Journal A. M. A.*, March 2, 1912, p. 640):

"To further the intelligent and rational use of medicines, THE JOURNAL, with the assistance of the Council on Pharmacy and Chemistry and of the Chemical Laboratory, has exposed the

false claims made in regard to the composition and the action of many proprietary medicines. This 'propaganda for reform in proprietary medicines' has been supplemented by the efforts of pharmacists to promote the use of certain pharmacopeial and National Formulary preparations whose composition is similar to that claimed for some of the proprietaries which have been exposed. This 'U. S. P. and N. F. propaganda' of the pharmacists falls short of our ideal in that it merely aims to substitute a ready-made, usually complex and unscientific mixture of known composition, for a ready-made, equally complex and unscientific mixture of unknown composition. But in so far as it promotes the use of preparations of known composition in place of those of unknown, uncertain or fraudulent character, the medical profession is indebted to pharmacy for the aid which has been given. The medical profession cannot, with good grace, criticise pharmacy for having chosen the path of least resistance when it attempted to wean physicians away from proprietary nostrums by encouraging the use of similar official preparations. There is danger, however, that the pharmacists' propaganda may mean only that the physician who previously used certain proprietaries uncritically will be led to use just as uncritically the official preparation from which the proprietary was derived. For instance, the physician who used Glycothymoline and expected the wonderful results claimed by the manufacturer, may use the alkaline antiseptic solution of the National Formulary with equally absurd expectations. Or the physician who gave his patient Churchill's or Fellows' Syrup of Hypophosphites will prescribe the Compound Syrup of Hypophosphites, U. S. P., in the same haphazard and unscientific way. Let us hope therefore that those physicians who substitute official preparations for proprietary nostrums will do so with a full realization that they are still in their professional swaddling-clothes and that they should make a serious effort toward individual, rational prescription-writing."

Let us hope that as fast as members of the medical profession discard their therapeutic swaddling-clothes and put on "long pants" that the pharmaceutical profession will also have made the needed progress. When physicians make a serious effort to write prescriptions for the need of individual patients, it is then more than now that they should be able to depend on the trained, educated pharmacist.

Stumbling Blocks in the Path of Preventive Medicine.

The appreciation of the value of prevention of disease has been growing rapidly of late years, and many official and philanthropic activities are directed to that end rather than to treatment after the disease has reached the advanced stages. Many of the agencies concerned with the treatment of pre-tuberculous cases are doing good work in this direction, often against great difficulties, and accordingly it is with regret that one chronicles reactionary movements, especially when based on the purest egotism. One of the most recent of these evidences of ignorance and selfishness has been shown in the action of the Chamber of Commerce of a small community not a thousand miles from the Public Square, in which community one of these attempts to save the sick and needy from tuberculosis is being developed. Although the Day Camp, in which the patients are cared for from eight in the morning to five or six in the afternoon, is in a lot some three hundred feet wide by eight hundred feet deep, touching the lake on one end and having as immediate neighbors only a convent, in which the precepts of philanthropy are preached and practiced, it is considered by the said Chamber of Commerce to be a menace to the public. Danger from the paper napkins used by the consumptives was enlarged on last summer, in spite of the fact that there were none of these used in the camp; and although a large sewer from this community opens directly in the next lot, further complaints were made about smells from the camp sewage. This year, however, the Chamber of Commerce of the village, apparently without any attempt to find out the facts, has placed itself in open and active opposition to the repetition of the philanthropy of last year. The main objections are that the residents of this advanced community object to the presence of the patients on the street cars on which they ride, and one good lady went so far as to state that she objected because it made her feel bad to see the poor sick things pass her door! The fact that many of the patients were so improved that they were able to take up work and the support of those dependent on them after the summer's treatment, and that they are taught to be careful so as not to be dangers to the community at large, have, of course, no bearing on the august assemblage which sways the village interests, so long as its members are personally frightened. It is, of course, most unlikely that the humane efforts of the Antituberculosis Society, and the phil-

anthropy of the owner of the property in question will be thwarted by these petty men, and indeed their efforts to hold back progress in the prevention of disease would be humorous were it not pathetic to see how persons of supposedly normal intelligence can place themselves in ridiculous positions.

"New and Nonofficial Remedies, 1912."

The continuous advance of synthetic chemistry and the refinements of chemical methods in general have resulted in the production of numerous compounds, many of which should have and properly do have application as therapeutic agents. These the physician should be permitted to use. Progress in the preparation of medicinal substances is more rapid than pharmacopeial revision can possibly be and there is a legitimate use for new compounds which have not yet made their way into the pharmacopeia. Many preparations, especially synthetic ones, have unwieldy chemical names, so that manufacturers have naturally turned to the use of short, often descriptive terms. It is just the matter of naming drugs which has brought the nonpharmacopeial substances into disrepute. Old-fashioned preparations, often having undergone slight and inconsequential alterations, are given new names, are heavily advertised and are then sold to the profession at exorbitant prices. The tendency has been to mix a small amount of same cheap chemical substance with a large amount of expensive printer's ink and to make the doctor or his patient pay the combined price of the two for something that ought to be obtainable at reasonable cost. The profits that are to be made by thus hoodwinking the medical profession are so large that the number of manufacturers who sell the same thing under different names—but always at an excessive price—has become legion. The physician is not in a position to protect himself against such onslaughts. If the formula or chemical composition are not given he is entirely at sea and even if the composition and mode of preparation are stated both may be so complex that the doctor has not the expert chemical knowledge to determine whether a given new compound may be theoretically valuable or not. Without help even the most careful practitioner must make mistakes in the prescribing of new drugs if he does not limit himself to pharmacopeial preparations.

It was to render such help and to prevent the exploitation

of the profession that the American Medical Association began what has become perhaps its most important function. Through its Council on Pharmacy and Chemistry, the personnel of which alone is sufficient guarantee of fairness and accuracy, it has since 1905 furnished the profession a wealth of information upon new proprietary remedies. The findings of the Council are promulgated from time to time in the *Journal of the American Medical Association* and once a year are brought together in book form. The 1912 edition* has just been issued. It is valuable not so much as a mere catalog of substances accepted by the Council, but rather as a list of remedies which have complied with the just and fair rules of the Council and which ought, therefore, to be prescribed by the physician to the exclusion of any and every drug that may be advertised to him through a circular or a medical journal. If the practitioner is to use, as in fairness to himself and his patients he ought, any of the new remedies other than those found in the United States Pharmacopeia or the National Formulary, he cannot well get along without "New and Non-official Remedies, 1912," and the supplements which are sent gratis as they appear. It is only by consulting such a guide that he can be sure that some mendacious manufacturer is not "putting one over" on him when he prescribes a remedy whose exact chemical composition is unknown to him or is so complex as to be not readily understood by any except the expert chemist.

The Doctor's Spring Tonic.

"In the spring a young man's fancy lightly turns to thoughts of love"—and that of the old, middle aged or young doctor turns to thoughts of baseball, and continues firmly turned in that direction until the frost in the fall atmosphere reminds him that the "sad and melancholy days have come." It is well that it should be thus. The exactions of the profession are such that anything which will displace for a two-hour period the perplexities of practice deserves to be fondly accepted by the doctor as a therapeutic agent for personal administration. The automobile has proven a boon to the physician because it conserves his time and energy and in doing so gets him out into the open. But all

**New and Nonofficial Remedies, 1912. Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to January 1, 1912. Sent postpaid by the American Medical Association, 535 Dearborn Avenue, Chicago; in paper, 25 cents; in cloth, 50 cents.*

of us have not the means for applying the proper homeopathic remedy for the chronic gasoline poisoning which may afflict us. Even better than the automobile as a relaxative is baseball, because it conduces to a more complete laying aside of professional cares and worries in the open air. This tonic seems to be in fairly good repute among the members of the local profession, if one may use as a criterion the number of doctors who attend the games. An almost successful attempt to "kill the umpire" and a call upon the stands for first aid to the injured would give the victim the benefit of all the specialties and of degrees of experience varying from that of the hospital interne to that of him who began practice in those days when the runner was out when hit by a thrown ball—and if the attempt were successful we imagine that it would even be possible to find among the audience a pathologist to perform the autopsy.

Norman Hapgood has named as the four prime elements, which give the modern game its vogue, efficiency, visibility, sustained suspense and democratic background. These are factors which make as great an appeal to the more staid professional man in the grandstand as to the "fan" and "rooter" in the bleachers. We may agree with Editor Hapgood in his belief "that some millions of my countrymen, with no harm to their intellects, are happier for their fanatical interest in the game"—and in the case of baseball as a therapeutic agent for the doctor himself we may accept the old rule that "what does no harm does good." It will do us all good to go out occasionally and forget our professional troubles for two hours at a time.

The Isabel Hampton Robb Memorial.

On Tuesday, April 9, the Isabel Hampton Robb Memorial was formally presented by the Memorial Committee, with simple and appropriate exercises and in the presence of a large assemblage of friends of the late Mrs. Robb, to the Graduate Nurses' Association of Cleveland. The Memorial is a large and completely furnished club-house, situated at 2100 East Fortieth Street. The Central Registry for Nurses has made the Memorial its headquarters and some fifteen nurses are in residence.

In establishing this Memorial, the Committee has carried out a long-cherished plan of Mrs. Robb, to found a club for nurses which shall be a center for all the interests and activities

of trained nurses in the city. The plans of the Committee and of the Graduate Nurses' Association embrace, in addition to the usual features of a club, a variety of educational and sociological activities. A fund to establish series of special lectures has been started. Upon the Memorial thus far \$14,000 have been expended and of this all but \$2,500 have been raised.

The numerous friends and admirers of Mrs. Robb will rejoice with the Committee and the Graduate Nurses' Association upon the successful consummation of this fitting memorial for her who stimulated and accomplished so much for the higher training of nurses.

"Swat the Fly!"

Born of filth the fly remains of filth filthy, even when it transfers the field of its activities from the garbage heap to the kitchen. Always a destroyer of human peace and an annoyer of human slumbers we know now that the insect is more than that. Its share in the transmission of disease, particularly typhoid and the intestinal ills of infants, has been established beyond peradventure. The fly is more than a disturbing pest; it is a serious menace to health, and as such merits destruction. Formerly supposed to have a useful place in the harmony of the universe as a scavenger, we have found it more economical to practice other and safer methods of garbage disposal.

Any agitation which has for its aim a decrease in the number of flies deserves the active support of the medical profession. "Swatting" the individual insects is helpful, but more valuable is a campaign of education which goes to the root of the evil and teaches the greater efficiency that lies in a destruction of breeding places. The proposed local campaign, which seeks to enlist the aid of all the school children of the city through the dissemination of educational leaflets and the offering of prizes, ought to be the most effective plan which can be devised. It will certainly receive the hearty cooperation of all the physicians of Cleveland.

The Annual Meeting of the State Association.

The sixty-seventh annual meeting of the Ohio State Medical Association will be held in Dayton, May 7, 8 and 9. Cleveland is well represented upon the program, and since the local Acad-

emy of Medicine has the largest enrollment of any of the constituent societies of the Association there should be a heavy attendance from Cleveland. The officers have arranged a helpful series of sessions and the Montgomery County Medical Society has made great preparations for the entertainment of its guests. It is said that this Society has already collected more money for the annual meeting than any other county society ever had for such a purpose; more is coming in, and the invitation for help in preventing a possible unexpended surplus is earnest and urgent.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Hemorrhage: In the *New York Medical Journal* for February 3rd, A. W. Lescohier considers the serum treatment of hemorrhage and blood dyscrasias. It has been reported by numerous investigators that the injection of fresh serum is a potent factor in controlling certain types of hemorrhage where there is a delay in the coagulation of the blood, although this clinical fact does not appear to have received general recognition. The treatment of hemorrhage depends upon two factors: First, drugs employed for their action on the vessels; second, agents used to promote the coagulation of the blood. Among those drugs whose value depends on vasomotor effects are adrenalin, pituitrin, atropin and the nitrites; while the salts of calcium, strontium, magnesium, and solutions of gelatin have been employed with varying success in endeavors to shorten the coagulation period. In certain types of hemorrhage, particularly those in hemophilic subjects, these measures have been inadequate. The name of Weil has been widely associated with the first attempts to apply serum therapeutically in the treatment of hemorrhage, but almost ten years before Weil published his work Bienwald reported the successful control of a case of hemorrhage in a hemophilic child with fresh serum. Weil distinguishes two forms of hemophilia, the accidental or transitory, and the congenital variety. The consistency with which certain results have been obtained by different workers appears to justify the following conclusions: (1) The coagulation period in hemophilic subjects is greatly shortened by the injection of fresh serum. (2) The local application of fresh serum in wounds, in patients in whom there is a delayed coagulation of blood, tends to act as a hemostatic. (3) The serum of any species is efficient in producing this phenomenon. (4) The sera of the ox and dog should be avoided if possible because of the toxic symptoms frequently attending their use. (5) Although possessing some efficiency, regular antitoxic sera are less satisfactory than freshly drawn material. Two questions of practical importance are: (1) Has the serum any value in promoting coagulation in conditions where there is no hemophilic tendency? (2) Why are stock sera less satisfactory than freshly drawn material? In view of our lack of knowledge of the way in which the serum produces its effects, we are not warranted in definite conclusions, but the indications are that it will be of use only in conditions in which there is delayed coagulation. The difference between antitoxic and fresh serum may be due either to age, or the presence of a preservative, which the former always contains, but clinical reports that the antitoxic sera are strikingly efficient in some cases and disappointing in others would tend to discredit the assumption that the preservative acts as a retardant and

the inactivity of the sera in hastening coagulation probably depends upon the changes which they undergo with age.

Aconite: The *Therapeutic Gazette* for November, in its editorial columns, treats of the therapeutic effect of aconite. In olden times, when we knew nothing of microorganisms as the cause of disease, it was commonly supposed that hyperemias and congestions were solely dependent on disorder in those areas through which blood vessels were freely distributed. Acting on this conception, it was a common practice to administer the cardiovascular sedatives in the early stages of acute hyperemias with the hope of drawing blood away from the congested area, and of diminishing the amount of blood which was sent to it. It is almost inconceivable that the good results which physicians thought they recognized after this use of aconite and similar drugs could have been entirely imaginary, although it is probable that the manner in which they did good was misinterpreted. There can be no doubt, however, that with the much improved conceptions of the cause of disease, the use of cardiovascular sedatives has very materially decreased, and aconite, which at one time was an exceedingly popular remedy, is not employed by many physicians from one year's end to the other. It has been thought for many years, both by pharmacologists and practical therapists, that the dominant effects of therapeutic doses of this drug are to slow the pulse and directly or indirectly lower the blood pressure. Experiments on the lower animals support this view, and we think, too, that the average clinician who has used this drug sufficiently frequently to be a capable judge of its influence, holds the opinion that its effect on man is similar to its effect upon the lower animals. Recent investigations by Frederick W. Price as to the action of aconite upon the pulse rate in cases of cardiac disease show results directly contradictory to those generally accepted. Using aconitin to represent the drug he concludes that it has no influence in slowing the pulse, and, in fact, that the remedy possesses little value. While it may be true that aconite in cases of cardiac disease, particularly in cases of ruptured compensation, fails to slow the pulse, we do not think that this is sufficient justification for the assertion that it never slows the pulse, since the conditions which are present under these circumstances are very different from those which are present when aconite has been employed for other reasons. Aconite may not be able to slow the heart in the presence of dilatation and valvular disease, but may slow the heart in the presence of fever or nervous palpitation. It is possible that aconite may not act to produce beneficial results in the way which has been generally received, but this does not prove that it does not produce good results when properly administered in suitable cases, for that it is a valuable remedy in many cases of so-called "tobacco heart," in the overacting hearts of athletes, and in certain cases of tachycardia associated with neurotic symptoms, is, we think, undeniable.

Tolerance to Drugs: The *Medical Record* for February 24 comments on the rationale of acquired tolerance to drugs. The manner in which the body protects itself from the action of foreign substances, more particularly from the action of virulent poisons, is a subject which has acquired considerable importance within recent years. That the organism possesses many different modes of disposing of its toxic invaders, is pointed out by W. E. Dixon in the *Proceedings of the Royal Society*. One of these methods, as explained on the basis of Ehrlich's hypothesis, is the attraction of drugs to the protoplasmic molecule to which they are bound by certain atomic groupings. But the body possesses the power, in a simpler manner, of causing the synthesis of poisonous substances into relatively harmless ones. Phenol

combines in the body with sulphates forming phenol sulphuric acid; camphor unites with glycuronic acid; and salicylic acid unites with glycocoll forming salicyluric acid, the synthesis of the last named substances taking place in the kidney through the agency of a ferment. The behavior of the body in the presence of alkaloids illustrates how real tolerance may be acquired. Morphin is split up into oxy-di-morphin, which is practically innocuous. Faust has shown that after repeated hypodermic injections of morphin into the dog, at first 70 per cent of this alkaloid was excreted in the feces, but later only a trace is thus eliminated, while chemical examination of the tissues revealed no trace of the poison. These experiments proved that the tissues of the animal had acquired the power of destroying the poison. It has been shown by Heger and others that the tissue juices of the frog's liver have the power of completely destroying hyoscyamin. Cloetta has shown that the natural tolerance of the rabbit to atropin is due to the animal's power of destroying this alkaloid, which process takes place in the liver. In view of the widespread use of tobacco, the question of how the body disposes of the nicotin that is absorbed is one of eminent practical importance. Dixon subjected this question to experimental investigation, and found that a certain tolerance to nicotin can be acquired by those who use tobacco habitually. This substance is removed from the circulating blood by the liver cells, which, through the agency of a ferment, destroy the alkaloid, provided that this reaches the tissues slowly and in minute quantities, which is the case in ordinary tobacco smoking. The manner in which the body acquires tolerance to certain inorganic substances is still veiled in obscurity. Examples of this tolerance are seen in the case of the gastrointestinal irritants, copper sulphate and zinc sulphate, and particularly in the case of arsenic, as in the arsenic eaters of Styria. At any rate the problem of arsenic tolerance, whether studied with reference to the protozoan or to the multicellular organism, is still a long way from solution.

Nephritis: W. Ophuls, in the February number of the *Archives of Internal Medicine*, considers subacute and chronic nephritis as found in one thousand unselected necropsies. His conclusions are that, at the present time, in many cases entirely too much attention is paid to the kidneys, clinically and anatomically. The so-called primary or genuine contracted kidney represents a disease of the kidney which is the result of arteriosclerosis in the terminal arterioles in this organ, is closely associated with general arteriosclerosis, and cannot be properly understood without due consideration of this fact. It is difficult to decide the exact interrelation between the renal lesions, general arteriosclerosis and the hypertension and cardiac hypertrophy, which are usually present in these cases. It is only safe to say that the role of the kidney lesions in the production of hypertension has been evidently considerably exaggerated. There is some reason to believe that the condition as a whole is a toxic one. So far, however, lead is the only substance which seems to bear any definite etiological relation to the general process. Of true primary subacute and chronic inflammations of the kidneys there remain subacute and chronic glomerulonephritis, definitely in the majority of instances due to chronic sepsis. Closely related to this etiologically and anatomically, is the subacute and chronic amyloid kidney (the large white kidney of other authors). From a combination of these last two conditions there arises the so-called secondary contracted kidney, which in his series was responsible for eleven out of thirty-seven cases of seriously contracted kidneys. The etiology of the cases of secondary contracted kidney is not quite so clear as that of the more acute conditions but it is highly probable that chronic sepsis, in the broadest sense, is an important factor. The lesions in subacute and glomerulonephritis, and secondary contracted kidneys are practically always hemorrhagic, and in subacute and chronic

amyloid kidneys frequently so. The interstitial lesions which are present in these latter conditions begin to develop early, practically simultaneously with the epithelial lesions. It is not very likely, therefore, that they should be secondary to them.

Soluble Digitoxin: In the *British Medical Journal* for January 13th, (via *New York Medical Journal*) Benjamin Moore takes up the study of one of the pure principles of digitalis, soluble digitoxin, the principle present in digalen, which preparation he used. The digitoxin was also used in the form of a solution in normal saline to prove the absence of effect of glycerin used in the original preparation. From experiments on animals and observations on man he concludes: 1. That the method of standardization of digitalis is incorrect, as it presupposes a direct relationship between lethal dose, whereas no such relationship need exist where there is a variable content of active substances. 2. That the relationship of lethal to therapeutical dose is the factor of safety of a drug. 3. That the active substance which is most advantageous is the one having the highest factor of safety, and not the one with the highest toxic action and that soluble digitoxin possesses this property. 4. That the basis for determining the toxicity of such a drug is the physicochemical one of relative absorption or combining power of the drug for the blood on the one hand, and the cardiac tissue on the other. The ratio of these two is the coefficient of distribution. Although this is fairly constant, it varies somewhat at different concentrations; this leads to a higher factor of safety. High coefficient means marked toxicity and usually a low factor of safety and rapid cumulative action. 5. Soluble digitoxin can be used for intravenous injection owing to its solubility in water. This solubility prevents pain or local reaction such as is seen in the case of alcoholic solutions. The low toxicity as compared to tincture of digitalis renders the intravenous injection safe; while a full therapeutical effect can be obtained. 6. One should aim at a full therapeutic effect with soluble digitoxin, and the drug should not be pushed further. 7. Pure digitalis effect is obtained on perfusion with soluble digitoxin. 8. There is no hemolytic action on the red blood cells as is the case with digitonin.

Acute Rheumatism: *The Critic and Guide* for February states that in the treatment of rheumatic fever complete and prolonged rest in bed is the first requisite. In addition to its other advantages this lessens the strain on the heart, the point of greatest danger in rheumatism, and at the first sign of any complication as endocarditis, myocarditis or pericarditis, ice-bags should be applied to the precordia, and blisters used, cardiac stimulants and sedatives being of little value. Overfeeding must be avoided, and the carbohydrates are preferable during the acute stage, but if the patient is left anemic after the acute stage is passed, proteids need not be withheld, since it is now known that the acids generated by meats are not the cause of the disease, although they may possibly predispose the system to the infection by the microorganisms which are its chief cause. Salicylic acid and its compounds are the chief remedy. Free salicylic acid is to be avoided because of its irritating effect on the stomach, the most desirable form being the salicylate of sodium well diluted followed by an equal dose of sodium bicarbonate to neutralize any salicylic acid that may be liberated. After two or three days as the patient improves the doses should be reduced to one-half or one-third the former amount and after a week, if the condition of the patient permits, it is well to discontinue so that after an intermission the treatment may be resumed with somewhat free doses. Serum treatment has not proved satisfactory, but alkalies are useful as an adjuvant. The best ointments are of methyl salicylate 10 to 20 per cent, menthol and

camphor 10 to 15 per cent. Hot or cold applications sometimes help to give local relief. In some cases even the largest safe doses of the salicylate fail to control the pain, and in these cases antipyrin or phenacetin, three to five grains, four or five times daily, can be used; or if sleep is impossible an opium suppository, morphin injection or ten grains of Dover's powder, when the mild hypnotics are of no avail, may be used. In the so-called "cerebral rheumatism," icebags to the head, leeches at the back of the neck, venesection, purgation and cerebral sedatives are indicated. With hyperpyrexia the iced bath and icebags on the head are imperative, while antipyretics are dangerous, even when they cause a fall of temperature. Where the pain is very severe, a combination of the salicylate with a coal tar preparation acts more quickly and more surely. For instance, a capsule or powder containing sodium salicylate ten grains (or aspirin seven grains) combined with phenacetin six grains or acetanilid three grains and codein one-half grain often acts more beneficially than three times the dose of sodium salicylate alone. Acute rheumatism often leaves the patient very anemic; if this is the case iron in an easily assimilable form, or iron and arsenic, should be administered for a long period.

Review of the Progress of Medicine.

Hemorrhagic Diseases and Their Serum Treatment.

By JOHN PHILLIPS, M.B., and V. C. ROWLAND, M.D.

The study of the hemorrhagic diseases was given a new impetus by the introduction of the serum treatment, originating with the work of P. Emile Weil in 1905. It was long recognized that the contact of fresh serum or tissue juices with blood hastened coagulation and that an excess of fibrin ferment was liberated in the process. Although later investigations have shown the coagulation of the blood to be much more intricate, these facts served as the basis for the therapeutic use of blood serum. As early as 1850, transfusion was suggested for hemorrhage in the newborn, but was so beset with dangers and technical difficulties that nothing came of it. Weil's work seemed to establish the following facts: 1, The serum of horses, cows and rabbits, as well as human serum, have the power of controlling hemorrhage by increasing the coagulability of the blood. 2, Beef serum is too toxic for ordinary use. 3, Serum for use in controlling hemorrhage should be less than two weeks old. 4, 15 C cm intravenously or 30 C cm subcutaneously will usually be effective. 5, Serum also exerts a local effect at the site of hemorrhage. 6, The increased coagulability of the blood persists from fifteen days to several weeks following the injection of serum. 7, The results in true hemophilia are at best only temporary. 8, The prophylactic use of serum, when possible, is better than injection after the hemorrhage is established.

Of the various hemorrhagic conditions, the hemorrhage of the newborn may be taken as the type. The obscurity and seriousness of the disease have been the occasion for an extensive literature. Aside from the bleeding following obvious trauma and the cases of simple vaginal hemorrhage unassociated with bleeding from other sources, the etiology remains largely in the speculative stage. The condition seems to occur in the most healthy infants, usually before the tenth day of life and most commonly on the second or third day. The hemorrhage may be sudden and rapidly fatal. However, there are often premonitory signs. The infant may be restless, cry more than usual and refuse to nurse. There are slight fever, evidence of abdominal pain, anorexia and vomiting and indeterminate nervous symptoms. Frequently there is a papular eruption, which may extend and later become hemorrhagic in character. The stools may be green or dark or otherwise abnormal. However, all symptoms may be so slight as not to attract attention until frank hemorrhage appears. This

usually occurs from the cord or gastrointestinal tract and vagina, into the skin or internal organs, especially the liver, kidney and brain and into serous cavities. With the onset of hemorrhage, the condition of the child may suddenly become desperate. The temperature may fall to subnormal and the well nourished state of the child at birth give way to a rapidly progressing emaciation. Convulsions may close the scene. The disease is self-limited, however, and in cases of recovery no tendency to bleeding remains longer than a few days. Jaundice may be associated and is usually considered of ill omen, but there is no relation between the severity of the symptoms and the degree of jaundice.

The etiology is so varied that the condition seems more symptomatic of other diseases than a separate entity. It is usually not related to genuine hemophilia. It occurs in both sexes alike and is not hereditary. In about 6 per cent of cases reported by Grandidier in 1871, there was a definite family history of hemophilia and the diathesis persisted with the usual manifestations throughout life. This small proportion of cases may properly be designated hemophilia neonatorum. Bacterial infection has also been extensively regarded as a factor in some cases of spontaneous hemorrhage. It is suggested by the fever and the acute self-limited course of the disease. Most writers have considered it more common in institutions than in private practice and some have claimed that it has a relation to the prevalence of puerperal infection in lying-in hospitals. There is, however, no uniformity in the bacteriological findings. Among the organisms reported are the pyogenic cocci, *B. coli communis*, *B. typhosus*, *B. enteriditis*, *B. lactis aerogenes*, *B. diphtheriae*, *B. hemorrhagicus* of Kalb, the pneumococcus and the pneumobacillus of Friedlander. Such a list, together with the fact that blood cultures in many severe cases have been negative, argues against infection as a constant etiological factor. In 1876 Epstein associated syphilis with hemorrhage in the new-born on the basis of changes induced in the capillary vessels. Syphilis hemorrhagica neonatorum was more prominent in the older writings than in the more recent. Statistically, there seem to be signs of congenital syphilis in about 2 to 6 per cent of cases of hemorrhage and hemorrhage in about 14 per cent of cases of congenital syphilis. Constitutional disease is also suggested as a predisposing cause, with a consequent bacterial invasion as the exciting cause. Primary blood defects seem to be the essential factor in some cases. The blood may remain fluid many hours after death. The coagulation time seems to be variously affected. More commonly it is markedly prolonged, sometimes unchanged or even diminished. In the latter case, the clot, instead of contracting with the separation of serum, may remain a gelatinous homogenous mass. These apparent inconsistencies Lucas has explained as follows: There is a diminution of one of the precursors of thrombin—prothrombin, which is derived from the blood platelets. The absence of prothrombin does not affect the coagulation time but the contractibility of the clot. In the purpuras, the blood platelets may be reduced from a normal of about 500,000 per C mm to about 7,000. The coagulation time depends on the salt content of the blood. According to Mellanby's recent studies in coagulation, fibrinogen may play a part here. He found that increasing the amount of fibrinogen lengthens the coagulation time and diminishing the fibrinogen shortens the coagulation time. This seems more significant, since fibrinogen is a well known substance constituting 0.22 to 0.4 per cent of the blood plasma. In connection with the hemorrhage of the new-born, Lucas suggests from the frequency of liver necrosis in these cases, that there may be a causal relation, possibly by diminishing the number of platelets.

Of the other hemorrhagic diseases, in which the serum treatment is applicable, may be mentioned hemophilia, cholemic hemorrhage, the various purpuras, anemia, acute infections, metrorrhagia, typhoid and post-operative hemorrhage.

All possible methods of serum administration have been used—intravenous and subcutaneous injection of whole blood, defibrinated blood and

serum. Experience so far has not shown a great advantage in any one method. It is more a question, in the individual case, of the most practicable method, especially in the sudden hemorrhage of the new-born. A very prompt procedure is to aspirate 3 to 5 C cm of blood from the basilic vein of the mother with a hypodermic syringe and inject it immediately into the buttock of the child. Antitoxin is always an available form of serum. Human serum, however, is preferable and may be obtained by tapping the vein of some member of the family of the patient, receiving the blood in a sterile receptacle and allowing the serum to separate. At least 10 C cm of human serum should be injected subcutaneously three times in twenty-four hours. If this amount fails to control the hemorrhage, as much as 30 C cm may be given at more frequent intervals, depending upon the behavior of the case. Human serum does not cause serum disease. Subcutaneous injections of whole blood have the disadvantage that the corpuscles must be destroyed and absorbed, although there seems to be no trouble from that source. Intravenous injections of defibrinated blood seem to combat the anemia as well as to supply serum. They may not be entirely free from danger and the technical difficulties are a decided disadvantage. The same may be said of direct transfusion. Human serum has a marked nutritional value and according to Leary acts as a powerful heart stimulant.

The local hemostatic action of serum finds its application in the cases of postoperative hemorrhage, especially in jaundiced cases. A gauze pack saturated with serum may be applied to the oozing surface. The usual injections would, of course, also be indicated. Something might also be expected from serum therapy in the hemorrhagic forms of various acute infections, especially measles and chicken-pox, which may be rapidly fatal.

It is too early to judge results, but many very favorable reports have appeared even in the hemorrhage of the new-born, in which the mortality under the old treatment was in the neighborhood of 60 to 70 per cent. The serum therapy has a rational basis and a wide application and probably will be used more in the future.

Pharmacotherapy.

This department will contain notes on important official drugs, the descriptions of new articles accepted by the Council on Pharmacy and Chemistry of the American Medical Association, and discussions of allied topics of current interest.

Pharmacopeial and New Formulary Preparations.

Official and Proprietary Iron Preparations.

All compounds of iron, administered by the mouth, are first converted into loose organic compounds, in which form they are absorbed from the entire surface of the intestinal canal, but particularly from the duodenum. The absorbed part penetrates the epithelium, passes through the stroma into the lacteals, and from here to the mesenteric lymph glands and through the thoracic duct into the blood. From the blood it is deposited, in an easily decomposed organic form, in the cells of the haematopoietic organs, in the liver and red marrow, and particularly in the spleen, as a "reserve stock." The utilization of the iron, its transformation into hemoglobin, occurs only as needed, so that the total quantity of hemoglobin never rises above normal.

Hence the administration of iron is useful only in those conditions in which the normal income or the assimilation of iron is deficient. Ac-

cording to the above correct theory, which is that of Tartakowski (1903-1904), it is therefore *practically useless for the physician to employ any of the numerous specialties or special secret compounds of iron in the treatment of disease. Nothing can possibly be gained, and their employment only adds to the patient's expense for the benefit of the manufacturer.* They can have no properties not possessed by the official *Liquor ferri albuminati*, N. F.

Betanaphthol, U. S. P.

Betanaphthol (formerly called naphthol) is a safe antiseptic and parasiticide. It can be used internally in such ailments as typhoid fever, chronic diarrhea, etc.; and externally, in 2 to 10 per cent ointment, in parasitic skin diseases. Average dose 0.25 Gm (4 grains). It is a monatomic phenol occurring in coal-tar; it is usually prepared from naphthalene. It occurs in colorless, pale buff colored or yellowish white, shining crystalline laminae or powder, with a faint phenol-like odor and a sharp, pungent taste. It is insoluble in water, and is administered in dry form, powder, capsules or cachet.

New and Nonofficial Remedies.

The following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Atophan is 2-phenyl-quinolin-4-carboxylic acid. The substance was first described by Doebner and Giesecke in 1887. Its therapeutic action was described by Nicolaier and Dohrn in 1908. It is insoluble in water but readily soluble in alkalies and has a slightly bitter taste.

It is said to be useful in gout, particularly in the acute attacks, acting more promptly than colchicum and without undesirable by-effects. In gout the dose is from 0.5 Gm. (7½ grains) four times a day to 1 Gm. (15 grains) three times a day suspended in large quantities of water. To prevent the precipitation of free uric acid from the urine, sodium bicarbonate may be administered simultaneously. In articular rheumatism daily doses of 3 to 5 Gm. (45 to 75 grains) are prescribed.

Atophan is also marketed in the form of tablets, each tablet containing 0.5 Gm. (7½ grains). Schering & Glatz, N. Y. (*Jour. A.M.A., March 2, 1912, p. 633*).

Cornutol is a biologically tested liquid extract of ergot. Dose, hypodermically, 0.65 to 2 Cc. (10 to 30 minims); by the mouth, 0.65 to 4 Cc. (10 to 60 minims). The date of testing appears on each package. Cornutol is put up in 1 ounce vials and in ampuls, each containing cornutol 2 Cc. (30 minims). H. K. Mulford Co., Philadelphia (*Jour. A. M. A., March 9, 1912, p. 701*).

Digitol is a biologically and chemically standardized, fat-free tincture of digitalis, corresponding in drug strength to tincture of digitalis, U.S.P. Dose, 0.3 to 1 Cc. (5 to 15 minims). The date of testing appears on each package. H. K. Mulford Co., Philadelphia (*J.A.M.A., March 9, 1912, p. 701*).

Eucodin is methyl-codein bromid. It is easily soluble in water. It corresponds to 80 per cent. of codein and to its own weight of codein sulphate. It is said to be useful as a sedative as a substitute for codein, especially in cough, where its action sometimes favors secretion. Dose, 0.06 Gm. (1 grain).

Eucodin is also marketed in the form of tablets, each tablet containing eucodin 0.05 Gm. (5-6 grain). Riedel & Co., New York (*Jour. A.M.A., March 16, 1912, p. 780*).

Euscopol is optically inactive scopolamin hydrobromid. It is easily

soluble in water and alcohol. It closely resembles the official scopolamin hydrobromid in its physical, chemical and pharmacologic properties. It is claimed to have a milder action because of the absence of other alkaloids said to be contained in the natural scopolamin hydrobromid. Riedel & Co., New York (*Jour. A.M.A.*, March 16, 1912, p. 780).

The following pharmaceutical preparations of accepted articles are included:

Tablets, Oxyntin with Pepsin, each containing Oxyntin 0.3 Gm. (5 grains) and pepsin equivalent to pepsin, U.S.P. 1 grain.

Capsules, Oxyntin with Nux Vomica, each containing Oxyntin 0.3 Gm. (5 grains) and Nux Vomica equivalent to tincture Nux Vomica 0.33 Cc. (5 minims).

Capsules of Holadin, Bile Salts and Phenolphthalein, each containing Holadin 0.13 Gm. (2 grains), Bile Salts, Fairchild 0.03 Gm. ($\frac{1}{2}$ grain), Phenolphthalein 0.065 Gm. (1 grain).

Capsules of Holadin, Succinate of Soda and Bile Salts, each containing Holadin 0.20 Gm. (3 grains), Sodium Succinate Exsiccated 0.20 Gm. (3 grains) and Bile Salts, Fairchild 0.03 Gm. ($\frac{1}{2}$ grain).

Capsules of Bile Salts, Succinate of Soda and Phenolphthalein, each containing Bile Salts, Fairchild 0.065 Gm. (1 grain), Sodium Succinate, Exsiccated 0.20 Gm. (3 grains), and Phenolphthalein 0.03 Gm. ($\frac{1}{2}$ grain). (*Jour. A.M.A.*, March 16, 1912, p. 780).

Academy of Medicine of Cleveland.

ACADEMY MEETING.

The ninetieth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, March 15th, 1912, the President, J. V. Gallagher, in the chair.

The program was as follows:

1. A Clinical Report of 100 Cases of Paresis with Serological and Cytological Findings, by K. S. West, Assistant Superintendent, and H. B. Corlett, Assistant Physician, State Hospital for the Insane, Cleveland (to appear later).

C. H. Clark agreed completely with every statement made. An important point brought out in the paper was that relating to the nature of the delusions in paresis. Formerly it was held that the delusions must be of the grandiose type in order that a diagnosis of paresis be made. We now realize that they may be of the depressive type also. The explanation of the delusions is difficult, except on the grounds mentioned in the paper. Often the delusion follows a suggestion and seem to be the expression of ambitions and desires uncontrolled by the higher inhibitory centers. The speaker said that he had had the idea that paresis is a respecter of persons, that it is more frequent in those of the higher walks of life. This view has not been borne out at the Cleveland State Hospital, where the majority of the paretics are from the middle and lower classes. This may be due in part to the fact that not all paretics of the higher classes go to state hospitals. The older idea that alcohol must be associated with syphilis in the causation of paresis does not seem to hold. Often the alcoholism begins after the disease has made its appearance and must then be considered one of the symptoms of the disease. The laboratory tests have been of the greatest aid in making the diagnosis and have cleared up many atypical cases.

J. S. Tierney was glad of the opportunity to rectify the impression due to the statement made in discussion in an earlier meeting that no investigational work was being done in any State hospital for the insane in

Ohio. He was convinced that at the Cleveland State Hospital work of value and of scientific accuracy was being done. The work here was not due to any incentive resulting from State help, but was due to the enthusiasms of single individuals. This state of affairs may be remedied when the necessity for research laboratory work is pointed out. Papers such as that presented are important, therefore, not only for the information conveyed but also because they indicate the value of scientific work.

W. A. Searl said that he had been impressed by the conclusions in regard to the remissions in paresis. In many cases correction of conditions leads to remissions; but the characteristic of the disease is that its progressive nature cannot be controlled. He asked as to the possibility of the engrafting of paresis upon some other form of insanity, recalling a case in which the diagnosis was at first paranoia, the patient later developing paresis. He also wished information upon the statement often made that in those in whom paresis develops the secondary symptoms of syphilis had not appeared.

W. B. Laffer, while admitting that there may be some similarity between paresis and tabes, felt that there are many more points of dissimilarity. Recently rather many cases have been reported which are clinically paresis but in which the Wassermann reaction is negative. Paresis cannot, therefore, be excluded if the reaction is negative. Furthermore, it does not follow that insanity with a positive reaction is always paresis; the syphilitic is liable to other forms of insanity as well as to paresis. In regard to the other diagnostic point, the cytological findings, it is interesting to note that in gliosis the cell count may be increased; and rather frequently immediately after death there is an increase in the number of cells in the spinal fluid. The latter point has some bearing in the proper valuation of those cases in which a diagnosis of paresis is made because of an increased cell count found after death. Just how much value the Wassermann reaction has in making the diagnosis the speaker felt difficult to determine; from time to time he is seeing cases which are clinically paresis but with a negative Wassermann reaction.

H. B. Corlett stated that most of his own work in the preparation of the paper had been in association with W. C. Stoner in the laboratory work. He felt that the Wassermann reaction is as valuable as the agglutination reaction in typhoid. In regard to negative reactions in paresis he pointed out that the series of cases reported included five cases in which the reaction was negative. A positively reacting blood serum does not necessarily mean paresis, and in paretics under treatment the reaction of the blood serum may become negative the spinal fluid continuing to show a positive reaction. In some cases of alcoholic insanity a slight hyperlymphocytosis of the spinal fluid has been noted; the highest count, however, was only equal to the lowest met with in paretics.

K. S. West, in closing the discussion, said that there is no reason why paresis may not follow some other type of insanity. But in such cases in which trauma or some other element is a factor, there would be no paresis unless there had been syphilis. He agreed that paresis and tabes are clinically distinct but felt that the underlying nature of both conditions is very similar.

2. Syphilis and Amentia: A Preliminary Report of a Study of 1050 Cases with Serological Findings, by W. C. Stoner, Cleveland, and F. L. Keiser, Assistant Superintendent, Ohio State Institution for Feeble Minded. (Illustrated with lantern slides.) (Published in full on page 251.)

W. G. Stern, in discussion, disagreed with the statement made in regard to the possible etiological relationship of syphilis to infantile diplegia. In his own experience he had never seen a case of spastic diplegia, with or without imbecility, in which there was not a history of injury and he felt that in such cases syphilis must be excluded as the direct factor.

M. J. Lichty said that it was important that the relation of syphilis to

mental defects be investigated, but that other factors must not be overlooked. The influence of consanguinity is familiar to all, and still other factors beside syphilis must be borne in mind. The work reported called attention to the general value of the Wassermann reaction. The test does not receive sufficient application; it should be more widely used in the investigation, not only of nervous diseases, but also of the problems encountered in internal medicine in general.

J. J. Thomas asked whether a positive Wassermann reaction in mongolianism is anything more than a coincidence. He did not believe that syphilis is an actual cause of mongolianism and could not understand how the latter condition could be produced by the disease.

W. B. Laffer advised caution in attempting to draw any conclusions in regard to a relation between syphilis and the amentias. A better idea of the possible direct relation of the two conditions would be obtained if a similar number of school children were examined in a similar way. Such a diversity of nervous system abnormalities has been described in children in whom syphilis has been found that it would appear that lues does not affect the child as it does the adult, that it is not so apt to produce systemic disturbances. In the functional nervous diseases of children syphilis does not seem to be an important factor. In general he felt that we are apt to give syphilis too great weight in the consideration of the amentias. In families in which repeated abortions have occurred idiocy of the children who do survive is rare and he did not believe that syphilis had any great share in the production of idiocy.

A. G. Hyde saw in both the papers of the evening further confirmation of the necessity for proper control of procreation. It is to eugenics that we must look for help in the improvement of the race and in the prevention of nervous infirmities.

O. T. Schultz said that we must not gain an improper conception of the real meaning of the Wassermann reaction. In discussion and in the literature one often encounters statements which refer to the Wassermann reaction as an expression of immunity. The reaction had been compared during the discussion with the agglutination phenomenon in typhoid. That the two are comparable and of equally great value as diagnostic measures cannot be doubted, but as biological phenomena the two have no very great similarity. The agglutination phenomenon in typhoid is the expression of something akin to an active immunity, whereas a positive Wassermann reaction would seem to be an indication of the presence of syphilis, either active or latent. In this connection it is important to bear in mind Neisser's contention that syphilis rarely produces a true and complete immunity; that so long as the Wassermann reaction is present the individual actually has the disease and when the disease is completely recovered from the possibility of infection again exists.

W. C. Stoner in closing the discussion said that he did not wish the work reported to create an improper impression; it was not attempted to prove that syphilis is a causative factor in the amentias or that it is the cause of diplegia or of mongolianism. The work was undertaken to determine how common syphilis is in a large group of mentally defective children for the purpose of seeing whether there is any underlying common factor in any considerable group of the mentally unfortunate. He agreed that investigation of a similar number of school children would be valuable and interesting. The results of such an investigation would probably agree, as do those of the series of cases reported, with the statement that approximately 10 per cent of any considerable population is syphilitic.

EXPERIMENTAL MEDICINE SECTION.

The sixty-first regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 8th, 1912, the Chairman, F. C. Waite, in the chair.

The program consisted of an address upon Vascular Suture and Some Considerations Regarding its Successful Execution and Application, by C. C. Guthrie, Professor of Physiology in the University of Pittsburgh Medical School (to appear later).

C. E. Briggs, in discussion, said that he had been particularly impressed by the minor role of the presence of suture material within the lumen of the vessel in the formation of a thrombus. Because of the fear that thrombosis would follow the presence of the sutures within the vessel lumen he had been accustomed, in such experimental vascular suture as he had attempted to evert the ends of the vessels with the hope that the close approximation of the two intimal surfaces would prevent clotting.

F. C. Herrick had found, in some experimental work with the Eck fistula, that union of the sutured vessels occurs rapidly and agreed that only ordinary surgical care was necessary for the establishment of strong union between the vessels.

C. C. Guthrie, in closing, said that he did not wish his remarks to convey the idea that asepsis is to be entirely disregarded. He merely wished to emphasize that, contrary to prevailing opinion, union of sutured vessels follows operations performed with ordinary surgical care and that the danger of thrombosis had been shown experimentally to be a slight one. Even in those cases in which the everted ends of the vessels are sutured it is probable that the sutures are exposed within the lumen of the vessel as soon as the blood flow is reestablished. The success of this method indicates that the suture material has little effect in the production of clotting rather than that the sutures are not exposed to the blood stream.

CLINICAL AND PATHOLOGICAL SECTION.

The eighty-fourth regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 3, the Chairman, H. L. Sanford, in the chair.

J. G. Spenser presented specimens of candy poisoned with arsenic and tubes containing arsenic isolated from the candy.

C. A. Hamann presented two specimens of calculus. One was a large vesical calculus which had formed around a hair-pin. The patient was a girl aged ten years. In the second case there were two stones, one in the kidney and one in the ureter; the clinical appearance was that of an abdominal tumor.

The regular program was as follows:

1. Causes of Perforation of the Nasal Septum, by W. B. Chamberlin (published in full on page 271). The paper was discussed by C. A. Hamann, R. K. Updegraff, J. G. Spenser and W. B. Chamberlin.

2. Carcinoma of the Large Intestine, by C. A. Hamann. Discussion by J. L. Jones, W. F. Doolittle, R. H. Birge, R. K. Updegraff, W. E. Lower, R. A. Brintnall and C. A. Hamann.

3. Result of X-Ray Treatment of Splenomyelogenous Leucemia, with Case Reports, by G. F. Thomas (appearing in full on page 259). Discussion by F. W. Davis, R. K. Updegraff and G. F. Thomas.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION.

The fifty-eighth regular meeting of this Section was held at the Cleveland Medical Library, Friday, March 22, the Chairman, W. E. Bruner, in the chair.

W. H. Tuckerman presented a case of complete atresia of both auditory canals. Two years ago an attempt was made to open one canal;

hearing was better for a time, but the canal again closed over. Recently the other canal was opened by the speaker and hearing is now fairly good. The atresia is not due to soft tissue alone; bony tissue is also present, and there is question whether any operative procedure can be productive of permanent good.

Leo Wolfenstein presented a man who had been coming to the Lakeside Hospital Dispensary for years for treatment for chronic conjunctivitis. No silver preparations had been used in the dispensary treatment. Upon his own initiative the patient had obtained argyrol from a druggist and had applied it himself, with the result that there was produced a marked conjunctival argyria. In discussion Edward Lauder recalled a case in which the use of argyrol over a period of several months for a chronic inflammatory process was followed by silver pigmentation.

The regular program was as follows:

1. Report of a Case of Herpes Zoster Ophthalmicus, by R. B. Metz. A man sixty years of age had suffered for many years from ophthalmic migraine, the attacks, characterized by amblyopia, scintillations and scotomata, being followed by severe headache, the latter being more marked upon the right side. No history of lues was obtainable and the patient did not use alcoholics, tobacco or drugs. In the latter part of July, 1911, there appeared a small pustule at the inner end of the right eyebrow; this was associated with enlargement of the cervical glands of the right side. Incision of the pustule was followed by prompt healing. On August 2 there was discomfort due to a sense of pressure back of the right eye, and on the next day there was paroxysmal pain in the right eye, with photophobia and the foreign body sense. On August 11 an herpetic skin eruption appeared, accompanied by neuralgic pains in the right eye, the pain extending from the inner canthus of the eye to the vertex of the head. The skin vesicles were confined to the distribution of the frontal and nasociliary branches of the ophthalmic division of the trifacial nerve. A vesicle appeared also upon the right cornea, rupture being followed by the formation of a corneal ulcer. The appearance of the vesicles was not followed by any abatement of the severe neuralgic pains. The skin vesicles dried and the crusts separated in two weeks. When seen at this time there was ptosis of the upper lid of the right eye and a slight degree of proptosis of the eye. On September 6th the neuralgic pains were still severe and the ptosis of the right eye was complete. There was crossed diplopia due to paresis of the superior rectus muscle. The cornea was opaque at the site of the ulcer and corneal sensibility was much lowered. The interior of the eye showed nothing abnormal. Improvement slowly occurred, and by January 3, 1912, the neuralgic pains had practically ceased. The sensibility of the right side of the forehead was decreased and there was paresthesia of the region which had been the site of the herpetic eruption. The ptosis of the right lid had almost completely disappeared. The elevation of the right eye was slightly defective but the diplopia caused no annoyance. The cornea was smooth but still showed some opacity at the site of the ulcer. The right pupil was larger than the left and reacted more sluggishly to light and accommodation. At the present time the scars of the original skin eruption can be seen, the skin of the vertex is sensitive to the touch and the skin of the right side of the forehead has a lowered sensibility. A slight trace of the ptosis persists, there is still some restriction of elevation of the right eye, but double images are only infrequently seen. Corneal sensibility is greatly lowered and slight opacity, due to the ulcer, is present. The right pupil is larger than the left and responds less promptly.

In the literature thirty-seven cases of herpes zoster ophthalmicus were found, the paralysis involving the oculomotor nerve in twenty-two of the cases. Recovery from the ophthalmoplegia is usually complete, requiring from six weeks to a year or more. Most of the evidence seems to favor

the theory of the infectious nature of the malady. In the case reported the herpes was preceded by a local infection at the inner end of the right eyebrow and enlargement of the cervical glands of the right side. In the absence of any other findings the local infection was looked upon as the primary focus which led to the later herpetic manifestations.

C. C. Stuart, in discussion, said that some seven or eight years ago he had presented a case of herpes zoster ophthalmicus in a girl of twenty years. In this case there was practically complete loss of accommodation.

W. E. Bruner mentioned a case seen some time ago in which there were corneal lesions but without the associated muscular involvement and with increased ocular tension. Under treatment the condition has improved and the corneal scars are disappearing.

2. Report and Presentation of Two Cases of Foreign Body in the Eye, One Being a Double Perforation, by C. C. Stuart (published in full on page 275).

Edward Lauder asked whether it is wise to attempt to remove a foreign body in case of double perforation; whether it is not better to permit the body to remain and to become encysted.

J. E. Tuckerman said that as a general surgical proposition an inert body should be allowed to remain.

W. C. Tuckerman recalled the case he had shown before the Section at the January meeting. The first X-ray examination failed to show the foreign body. Later examination showed the body to be still present and attempts at removal by means of the magnet failed. The eye has remained quiescent throughout, except for some ciliary injection after the later X-ray examination and before the magnet was applied. This injection disappeared promptly after administration of salicylates; it apparently had no relation to the foreign body. In such quiescent cases of injury by penetrating foreign bodies it would seem best to desist from any operative procedure. There is at present considerable siderosis; the uninjured eye shows no ill effects.

W. E. Bruner saw, some years ago, a case of double perforation in which a doctor had attempted to remove what he supposed to be the piece of steel by introducing a pair of forceps and making traction upon what proved to be the iris. X-ray examination showed the body to be present in the orbit back of the eye. The primary injury and the later trauma necessitated removal of the eye. In general, if a foreign body causes a double perforation and lies in tissues where the chances are that it will remain inert, he believed it best not to interfere operatively. In another case similar to that of W. C. Tuckerman a piece of steel had entered the eye some years ago. Seen recently the steel was found to be still present upon X-ray examination and application of the magnet had no response. He felt that in such a quiescent case nothing should be done unless complications render operative procedure necessary.

C. C. Stuart said that in general he believed that no attempt should be made to remove bodies which pass through the eye into the tissues of the orbit. Only if the body lies so that it may injure the optic nerve should interference be attempted.

3. Laceration of the Eyeball, Apparent Primary Healing, Subsequent Enucleation, Orbital Cellulitis and Abscess, by Edward Lauder. A farmer, twenty-six years old, while harvesting ice last January, had the eyelid and the eye injured by the tongs. There was hemorrhage and some loss of aqueous. The injury to the lid was repaired and the patient left the hospital on the tenth day with the eye in apparently good condition. On the nineteenth day after the injury the eye became very painful. A marked panophthalmitis was found to be present and enucleation was done. Then an orbital abscess was drained. A ball was put in, and after healing a small artificial eye was inserted, later a larger one, and it is hoped soon to put in an artificial eye of normal size. He recalled also another case

of penetrating wound of the eye, which remained apparently quiescent for nine days. Then there developed a severe purulent inflammation which necessitated enucleation.

4. Report of a Case of Hemianopsia, Luetic in Origin, with Partial Recovery under Treatment, by W. E. Bruner. The patient, a man aged thirty-four years, was first seen in 1907, when he complained of some difficulty in sight. Ophthalmoscopic examination showed nothing abnormal at this time and after an interval of a few weeks only a slight refraction error. In November there was complaint of blurring upon reading and a scotoma at the nasal side of the left eye was found. On November 25 there was complete right sided homonomous hemianopsia. The patient had denied a luetic history but finally admitted that he had had syphilis. He was then put upon specific treatment and by December 11 the blind area was considerably decreased. By April 30, 1908, the blind areas had contracted still further and the patient could read with little annoyance. Periodic treatment was continued. Vision is now 6/5. There is present a small area of blindness which causes no annoyance and which is probably permanent.

COUNCIL MEETING.

A meeting of the Council of the Academy of Medicine of Cleveland was held Wednesday, March 13, the President, J. V. Gallagher, in the chair.

C. B. Parker reported that the Cleveland Medical Library Association was willing to continue the former arrangement for use of the auditorium, payment on a basis of 20 per cent of the actual dues paid in. The Secretary-Treasurer was authorized to make payment for the use of the auditorium upon that basis.

O. A. Weber reported that *The Cleveland Medical Journal* agreed to continue its arrangement of the previous year. The Secretary-Treasurer was authorized to pay *The Journal* one dollar for every paid-up active member.

J. G. Spenser suggested for members of the Public Health Committee: M. Friedrich, H. J. Gerstenberger, R. K. Updegraff and J. C. Placak. The recommendation was approved.

E. P. Monaghan named the following as members of the Membership Committee: A. M. Cheetham, B. Peskind, J. F. Davidson, F. E. Sexton, W. A. Landgrebe and F. W. Linn. The recommendations were approved.

A. S. Storey named as members of the Civic Committee: H. J. Gerstenberger and G. W. Crile. The recommendations were approved.

Rixford D. Way was elected to associate membership in the Veterinary Section. The names of T. Bernard Tanner for associate membership and George Logan for nonresident membership were ordered published. The application of J. O. Glass was laid upon the table.

The Special Committee on Publicity made a partial report and was ordered continued.

A communication from the Montgomery County Medical Society extending an invitation to the Academy of Medicine of Cleveland for the coming meeting of the Ohio State Medical Association was presented and the Secretary was directed to accept the invitation in behalf of the Academy.

The ruling of the City Board of Health regarding milk shipments and the attitude of the farmers toward the same was referred to the Public Health Committee for investigation.

Book Reviews.

The Treatment of Short sight. By Professor Dr. J. Hirschberg, Geh. Med. Rat in Berlin. Translated by G. Lindsay Johnson, M. D., F. R. C. S., Johannesburg, South Africa. Cloth, 132 pages, 12 illustrations, \$1.25 net. Rebman Company, New York, 1912.

This very instructive little book, which can be commended to the attention of every oculist, is the result of a lecture delivered by Professor Hirschberg several years ago. As the translator, G. Lindsay Johnson, in his preface says, "The unique experience of Professor Hirschberg, extending over several decades of uninterrupted ophthalmic practice together with his marvelous powers of observation have rendered this treatise of special value not only to the student but also to the experienced oculist" * * * "I believe this work will have a double value not only by guiding them to cure myopia in a scientific manner but what is far more important by pointing out the dangers and pitfalls which beset those who attempt to cure high degrees of myopia without possessing that special knowledge which only large experience of eye disease can obtain."

After comparing the emmetropic and myopic eye and giving some statistics of myopia, he takes up the refraction and gives some rules concerning the selection of glasses in myopia. Then follows a discussion of the complications of myopia under the various heads. He says that his uninterrupted observations, especially in his private practice, carried on for more than three decades, "have given him the comforting conviction that by means of a long continued abstention from close work the stretching process can be so far arrested—indeed, relatively speaking, it is by no means rare for it actually to be brought to a standstill—that further diminution of acuity will not occur." After giving directions for the care of the eyes, he insists upon the necessity of "adopting a plan of treating the body rather than the disease." Concerning subconjunctival injections of normal saline, while they cannot be dispensed with entirely, he has convinced himself that they have no essential value.

He distinguishes three forms of true myopic glaucoma and concludes that "this important form of disease, although a rare one, is nevertheless an important consequence of the highest degrees of myopia and that in its tractable forms can also be operated on and cured. . ." Under discussion of detachment of the retina dependent upon high myopia, he states that it is essentially a disease of the vitreous. After insisting that every recent case should first be treated by mild measures, he outlines a passive treatment of complete bodily rest. He has long ago abandoned subcutaneous injections of pilocarpin but he considers subconjunctival injections of sodium chlorid first in physiologic and later in 2 per cent solution a rational treatment. He does scleral puncture but states that in any case a complete cure is very unusual.

In regard to the removal of the lens in high myopia he takes a very conservative position. "This operation belongs to the most responsible operations of the ophthalmic surgeon." "15 diopters represent the boundary line at which one can advise the operation, especially in children." "The results of the operation on the seeing eye in young persons were worse than the operation on a cataractous eye in an old subject." "Should very great retinal changes be present one is obliged to abandon the operation but in the case of moderate ones it may be allowed, but it is impossible to guarantee that the condition will remain unchanged." "The process of stretching of the fundus is not stopped by removal of the lens." "I have only selected such patients for operation which in the first place were quite helpless without it." The operation is not free from danger and he operates only on one eye, the worse one.

Up to 1901 he had operated upon twenty-four persons; "Since then none." He adds in a footnote, "The more bad results I met with among

the operations of my colleagues the more did my hesitation increase." He concludes "that the operation for myopia is a two-edged sword, which should only be wielded in case of necessity and that it is not right to extend the field of this operation too far."

Preliminary to advice upon the prevention of myopia or its increase he discusses the theories of the causation of myopia, lays special emphasis upon the influence of the school and urges certain essential things now recognized by all students of school hygiene. Many readers will scarcely agree with him in regard to a statement made here. After saying "The full and continual correction of school children is perhaps unnecessary, often impossible," he adds, with which statement the reviewer could not agree, "it is useless when the myopia is less than 2 D."

W. E. B.

Minor and Emergency Surgery. By Walter T. Dannreuther, M. D., Surgeon to St. Elizabeth's Hospital and to St. Bartholomew's Clinic, New York City. 12mo. volume of 226 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$1.25 net.

This book is dedicated to the hospital interne, and is written "for the interne's guidance when acting independently; to assist the ambulance surgeon in emergencies, to simplify practical work for the junior and to aid the senior in some of his predicaments." The book is compactly written, with a good index, and takes up concisely the technique of many lesser surgical treatments. It includes chapters on The Ambulance Surgeon, Accidental Wounds, Traumatic Injuries of Joints, a reddendum, Simple Fractures, Compound Fractures and Traumatic Amputations, Sequelae of Fractures, Acute Pyogenic Infections, Effects of Intense Heat and Cold, Ulcers and Bed-Sores, Foreign Bodies, Surgical Shock and Collapse and Death and Minor Operations.

If we would offer a word of criticism, it would be that the author advises suturing of wounds too frequently and he uses peroxixde as a cleansing agent, which in our experience has been of little value. His classifications are not always accurate, for example, poisoned wounds in the same class with morphological wounds and others. Also the operative procedures described here are very much better given in a small hand book such as Binnie's.

F. C. H.

The Surgery of Oral Diseases and Malformations. Their Diagnosis and Treatment. By George V. I. Brown, D. D. S., M. D., Oral Surgeon to St. Mary's Hospital and to the Children's Free Hospital, Milwaukee; Professor of Oral Surgery, Southern Dental College, Atlanta, Ga. Octavo, 740 pages, with 359 engravings and 21 plates. Cloth, \$6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

This is one of the most complete volumes of the above subject that we have ever had the pleasure of reviewing. The author takes up the various subjects in a systematic order, the illustrations are exceedingly fine, and the descriptions of operations are made in a clear and concise manner. The chapter devoted to Harelip, Cleft Palate, and Defects of Speech, is the best.

The volume will be found very valuable, not only to the specialist, but to the general surgeon.

S. H. L.

A Textbook of Ophthalmology in the Form of Clinical Lectures. By Dr. Paul Roemer, Professor of Ophthalmology at Greifswald. Translated by Dr. Matthias Lanckton Foster, Member of the American Ophthalmological Society; Member of the American Academy of

Ophthalmology and Oto-Laryngology. Volume I. Cloth, 275 pages, with 186 illustrations in the text and thirteen colored plates. \$2.50. Rebman Company, New York, 1912.

This textbook on ophthalmology contains an introductory chapter on the method of examining the anterior segment of the eye and chapters on diseases of the conjunctiva and cornea, of the iris and of the lens. It is well illustrated and carefully covers the subjects treated. The English is excellent and the exposition is clear, which is somewhat exceptional in a translation and speaks well both for the original and the translation. It is written in a clinical-lecture, case-history form, which naturally throws into prominence the author's personal opinion and also by repetition and discussion emphasizes important considerations. At the same time this method of presentation cannot be as concise as that of the usual textbook form and its usefulness as a reference book is thereby impaired. Whether the advantages of this method outweigh its disadvantages is a question for each reader to decide for himself. Of its kind the book can be heartily recommended.

W. C. T.

"The Friends of the Insane," "The Soul of Medical Education" and Other Essays. By Bayard Holmes, M. D., Chicago. Cloth, pages xvi and 270, \$1.00. The Lancet-Clinic Publishing Company, Cincinnati, 1911.

This little book, which is rather cheaply gotten up, consists of a number of essays which at one time or another have appeared in the *Lancet-Clinic* of Cincinnati.

Most of these articles constitute a bitter attack on all State Hospitals for the insane and in this respect the author is vehemently critical. All superintendents, good and bad, are from his point of view not much better than professional keepers of the insane. Even in the case of those institutions which are striving diligently to do modern scientific work he has much to find fault with and very little to commend or encourage.

There can be no question but that many of the complaints he makes are true and reforms are badly needed, but he certainly is not attacking the problem in a spirit that will tend to correct the evils that exist.

He also is imbued with the impression that the etiology of all insanity is wholly physical.

The work is interspersed with chapters bearing the following titles, "Lessons from veterinary medicine," "Blessed are the meek for they shall inherit the earth," "Bless the cook," etc.

H. H. D.

Acknowledgments.

Surgical Operations. A Handbook for Students and Practitioners. By Prof. Friedrich Pels-Leusden (Berlin). Translated by Faxon E. Gardner, M. D., New York. Cloth, 726 pages, 668 illustrations, \$7.00. Rebman Company, New York.

The Practical Medicine Series: Series 1912, Volume I., General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School. Cloth, 404 pages, with 2 figures and 10 plates, \$1.50. Price of the series of ten volumes, \$10.00. The Year Book Publishers, Chicago.

A Pocket Formulary. By E. Quin Thornton, M. D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. Tenth Edition. Revised. Leather, 288 pages, \$1.50 net. Lea & Febiger, Philadelphia and New York, 1912.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. 1912, Thirtieth Year. Cloth, 654 pages, 113 figures, 36 plates, \$3.50. E. B. Treat & Company, New York.

Public Health and Marine Hospital Service of the United States: Reprints from Public Health Reports, Nos. 72 and 73. Hygienic Laboratory, Bulletin No. 80.

Annual Report of the Surgeon General of the Public Health and Marine Hospital Service of the United States. For the fiscal year 1911.

Transactions of the College of Physicians of Philadelphia. Third Series, Volume XXXIII.

New York State Department of Health: Extract from the Thirty-second Annual Report. 1911.

State of New York: Report of the Eleventh Annual Conference of Sanitary Officers. 1911.

Reprints by: Charles F. Bolduan, New York, and W. Carey Noble, New York; Robert W. Lovett, Boston, and Phillip A. E. Shepard, Boston; Eugene H. Porter, New York.

Correspondence.

In the last issue of THE JOURNAL (page 213), in the course of an editorial entitled "The Association Laboratory," passing—and perhaps slighting—mention was made of what seemed to be a deviation from the very commendably conservative policy which has actuated the firm of E. R. Squibb and Sons since its foundation. The reference was to Thormedin and to the impression that the advertising matter seemed to try to convey, that the radioactivity of thorium is an essential feature of the preparation. We give space to the following letter:

New York, April 9, 1912.

Editor Cleveland Medical Journal.

Dear Sir:—In pursuance of our recent advice to you, we wish to say that our reply to the criticisms regarding Thormedin will be published in the next issue of the *Journal of the American Medical Association*, according to information we have just received, and we feel confident that the same will prove entirely satisfactory to you.

Now, as to the gentlemen responsible for those criticisms, we have every belief in their honesty and sincerity of purpose, and have never doubted that they were actuated by high motives. In their great zeal for reform, however, they were in this case simply carried beyond the lines of necessary effort; and in view of the vital importance of the good work they are doing and the great difficulties and dangers which beset the pathway of every reformer, we have no desire to find fault, but merely ask for the correction of the wrong which was done us.

We earnestly hope that all our friends will take the same view of the incident so that the cause may not suffer by ill-directed quarrels.

Faithfully yours,

E. R. SQUIBB & SONS.

Our opinion of Thormedin was based upon the report of William Allen Pusey in the *Journal of the American Medical Association* for March 9, page 716. But some considerable time before the appearance of this report we had received some of the Thormedin advertising matter, which was of such a nature as to produce a distinct sensation of disappointment that E. R. Squibb and Sons should have found it necessary to lend their name to some of the statements that appeared in the circular. We

felt that the entire general tone of that circular was contrary to the good taste and judgment that we had been wont to associate with the name of that particular firm. Doctor Pusey's report seemed to confirm our own inner feelings and suspicions in regard to Thormedin. We have no desire to condemn E. R. Squibb and Sons unjustly and we, therefore, give space to their letter above and call attention to their statement (page 1135) and to the editorial comment (page 1121) in the *Journal of the American Medical Association* for April 13. Whether the letter above expresses as open and fair a state of mind upon the part of E. R. Squibb and Sons as does that in the *Journal of the American Medical Association* we may leave to the reader of the two communications to decide for himself. In our own humble estimation E. R. Squibb and Sons has always represented our ideal of what the relation of a manufacturing concern to the medical profession should be. We would rather continue to commend than condemn, and in view of the submission of Thormedin to the Council on Pharmacy and Chemistry and of the firm's decision to abide by the Council's findings we feel that E. R. Squibb and Sons are still actuated by the desire to deal fairly with the medical profession. If the Council's findings shall be contrary to our own present beliefs in regard to Thormedin we shall gladly alter our views to conform with those of the Council.

The Fifteenth International Congress on Hygiene and Demography.

The work of organization of the Fifteenth International Congress on Hygiene and Demography, to be held in Washington, D. C., in September of this year, is progressing. But in view of the lack of centralization of public health matters in the United States and because this is the first such Congress to be held in this country, it will require much sacrifice and labor upon the part of many to make a showing at all comparable to that made by European nations in former Congresses.

For the purpose of illustrating hygienic and demographic activities of all sorts, an exhibition will be held during the three weeks from September 16 to October 4. Twenty-six Federal bureaus have signified their intention to install exhibits, as have also many States and cities, scientific associations, and institutions of learning and of research. No exhibition covering all the phases of hygiene has ever been held in the United States, but exhibitions on single problems, such as tuberculosis, infant mortality, housing reform, sewage disposal, etc., have amply proven that the exhibition is a most powerful instrument for the dissemination of knowledge.

The financing of the Congress is a matter of some concern. The estimated cost of the Congress is \$113,000. Toward this amount the Government of the United States has already appropriated \$20,000, and the Department of State has recommended a further appropriation of \$40,000. The remaining \$53,000 must be raised by private subscription. Of this sum nine persons have already subscribed \$23,000, leaving \$29,800 still to be subscribed. An active canvas for subscriptions is now being made.

The following, issued over the signature of John S. Fulton, Secretary-General of the Congress, points out not only the scope and timeliness of the Congress, but indicates also, as must the actual work of the Congress, the need of a systematized public health organization under the control of the Federal Government:

"The Fifteenth International Congress on Hygiene and Demography will meet in the United States in response to an invitation, extended by the President, in pursuance of an Act of Congress, approved February

26, 1907. The invitation was presented by the American delegates to the Fourteenth International Congress on Hygiene and Demography, meeting in Berlin in September, 1907, and was accepted.

In April, 1909, the Department of State created a Committee of Organization, and in May, 1909, appointed a President of the Congress, and a Secretary-General.

Under date of May 16, the Department of State addressed invitations, through the American Ministers and Ambassadors, to all foreign governments, announcing September 26, 1910, as the opening date. Later it was found impossible to make adequate preparations in so short a time, and Congress authorized postponement until 1911 or 1912. (*Public Resolution No. 13, approved February 3, 1910*). In April, 1910, the Department of State sent out circulars announcing the change of date, and subsequently the Department approved the date September 23-28, 1912, as the time of meeting.

Acceptances of the invitation have been received from 24 countries, including the Dominion of Canada.

Congress has also authorized the President of the United States to extend an invitation to the several States of the United States (*Public Resolution No. 12, approved January 24, 1910*). The Department of State sent out this invitation under date of February 4, 1911.

International Congresses on Hygiene and Demography are held at intervals of three to five years, and always on the invitation of a national government. Fourteen such congresses have been held in European capitals. The fifteenth Congress, to be held in the United States, in 1912, will be the first to meet outside of Europe.

These congresses have done much to promote international confidence, and to relieve international commerce of quarantine restrictions and other disabilities, due to the fear of transmissible diseases. They have improved the practice of hygiene and demography, especially in the countries where they have been held. The Fifteenth International Congress on Hygiene and Demography, meeting in the United States, in September, 1912, will occur at a most propitious time, as the following considerations will show.

(A.) An opportunity to convince the world of the soundness and stability of the Ishtmian Canal undertaking is greatly to be desired, and the forthcoming International Congress offers such an opportunity. The conquest of pestilential conditions has been recognized as a sine qua non in the construction of the Canal. Its future value as a *thoroughfare* depends no less on the maintenance of wholesome conditions on the Isthmus in the face of predisposition and exposure to epidemic influences. The forthcoming Congress will permit us to make an adequate presentation of our achievements in the Canal Zone, and to convince the world that the Canal enterprise is sound and stable.

In Cuba, Porto Rico, the Philippines and Hawaii, as well as in the Canal Zone, we have acquired notable mastery of tropical diseases, and our achievements will furnish inspiration and example to coming generations.

We have contributed our full quota to that knowledge which enables civilization to expand into fertile regions heretofore deadly to white men. We have enlarged the inhabitable area of the earth. We have developed a most successful practice of public hygiene, through which subject populations have been vastly benefited. The free population of Continental United States, if informed, will demand equal safeguards against preventable sickness and untimely death.

(B.) The pure food laws, and those governing the inspection of animals and meat products, have a far-reaching influence on the country's trade and have promoted uniformity and efficiency in the enactment and

administration of food laws in the States. Such a congress as that to be held in Washington in 1912, will confirm and extend the benefits of food legislation.

(C.) The need of a systematized public health organization, properly conformed to our plan of government, is clearly perceived by the people of the United States, is constantly urged by certain voluntary associations, and has been brought to the attention of Congress in presidential messages. Numerous legislative propositions on this subject have been considered in the Congress of the United States.

The development of a public health organization, such as the country needs, is a major problem in statecraft. Its solution is conditioned on the leadership of the Federal Government, the States concurring. Means of exercising this leadership and securing this concurrence, have been furnished by the Act of Congress, approved January 24, 1910, authorizing the President to invite the States to participate in the forthcoming International Congress on Hygiene and Demography.

Under the provisions of this Act we shall begin at once to inform ourselves concerning the status of public hygiene and demography in all parts of the United States. This information, nowhere available at present, is indispensable alike to the Federal Government and to the State governments, in the presence of a demand for the regular exercise of their joint and several public health powers.

(D.) The statistics of each leading country have their strong and their weak points. It was in the United States that official labor statistics originated, and from this country they have spread to every other great industrial state. But in the field of health statistics, vital statistics, or demography, the United States has lagged far behind not merely England, Germany and France, but even Russia, Greece, Australia and Uruguay. The present public health movement in the United States is now demanding that a scientific statistical basis for it be laid by organizing and developing American work in vital statistics. No doubt this duty rests most heavily upon our States and cities, but they can do little without the co-operation of the Federal Government. That co-operation took on a new and far more effective form when the Census Bureau was made permanent and charged with the duty of co-operating with the States and cities in the development of a national system of vital statistics. Since 1902, when the change was made, the improvement has been greater than during the century preceding. The main difficulties now are two—lack of an effective demand in many States for proper and complete recording of deaths, and lack of officials trained to use and interpret the figures so gathered in such a way as to make them serve the cause of public health.

The Census Bureau is dependent on local governments for information concerning births and deaths. Failure of local governments with respect to registration of births and deaths subjects private interests to inconvenience and loss far exceeding the cost of systematic registration; deprives the Government of the United States of necessary information concerning the growth and health of the people; impairs the credit of the country among foreign demographers; and has caused the country to appear as a defaulter for the last thirty years in an express international obligation.

These difficulties should be largely removed by the meeting of the XV International Congress on Hygiene and Demography in this country.

(E.) Besides the official interests of the Federal Government and of component and constituent governments, in the forthcoming International Congress, one must take into account the many private and unofficial agencies which are concerned with problems of public health. Wealthy citizens have founded institutes for the study and prevention of infectious diseases, and for the study of special problems such as tuberculosis, the hookworm disease, insanity, the hygiene of infancy and child-

hood, of schools and of occupations. Millions are permanently invested in such institutions.

Other large sums are expended annually in the promotion of public health by numerous voluntary associations, supported mainly by membership fees. The American literature of public hygiene is largely produced by these agencies. Much of this literature is very valuable to special students and experts, and much of it is intended for the general public. That there is an unequivocal demand for information concerning the prevention of disease, is shown by the large output of popular articles appearing in magazines and newspapers. In many parts of the country voluntary associations are conducting active campaigns of education by means of lectures, demonstrations and exhibitions. It may be said in a few years, if not now, that the American citizen is of all men the most efficient in self-defense against the common infectious diseases.

For the future of American hygiene and demography these private and unofficial activities are most significant. One sees in them the productive exercise of a free and intelligent public opinion; and in such a possession our country is peculiarly rich.

We have seen that the task of adjusting the practice of public hygiene to the principles of free government will prove a searching test of the intelligence and steadfastness of the American people, but a test which we may meet with confidence. An international assembly of public hygienists may contribute much to the solution of our problem, but chiefly it offers to the Federal, State and municipal governments of the United States, an invaluable opportunity to study their joint and several relations to public health and demography.

In this view of the Congress project, the period of preparation is seen as determining the success or failure of the undertaking. The larger profits, over and above the satisfaction of having well discharged an international obligation, will be supplied by the States according to the measure and the spirit of their participation. The Federal Government can do little to enhance the effect of its invitation to other countries, but emphasis can and should be added to the formal invitation which is extended to the States. It is not necessary to acquiesce in the regrets or excuses, or reluctance of a member of the family. No State must be left in doubt as to the spirit or significance of the invitation. By information, by importunity, by all sincere means, it is necessary to evoke urgent desire on the part of public health workers to participate in the Congress.

Having all these important responsibilities in public hygiene and demography, and sharing these responsibilities with her own local governments as well as with other nations, it is evident that the United States has taken a wise and necessary step in inviting the nations and the States to a conference on these subjects. Our hospitable intention toward the nations has given us, for a limited time, the free use of an instrument of power. To develop this power, and to apply it at its optimum efficiency, throughout our period of control, to the needs and purposes of our country, is to create out of a passing event a great and stable value."

Annual Meeting of the Ohio State Medical Association.

The 1912 annual meeting of the Ohio State Medical Association will be held in Dayton, May 7th, 8th and 9th. This will be the sixty-seventh annual meeting and will be an exceptionally important one. The revision of the constitution will be considered by the House of Delegates, and other matters of considerable weight will be discussed, so that a full attendance of this body is anticipated. It is to be hoped that the

county societies will insist on their delegates' presence this year, in order that a large and representative attendance may be insured. The principal meetings of the House of Delegates will be held on Tuesday morning and afternoon so as not to interfere with the scientific programs of the sections.

Place of Meeting.

The meetings will all be held in the Memorial Building at the corner of First and St. Clair Sts. Here ample quarters have been secured for all the sections, the general sessions, the House of Delegates and the exhibits. The place of registration will be here also, connected with a lounging room which will add materially to the comfort and convenience of visiting members.

The Program.

A preliminary program is herewith submitted, which while subject to minor changes, has been carefully considered and arranged by the section officers and the Council, so that the official program will be substantially the same.

SPECIAL ADDRESSES.

All orations and special addresses will be presented before the general sessions on Tuesday and Wednesday afternoons; there will be none before the sections as heretofore.

On Tuesday afternoon clinical talks will be given by Richard C. Cabot of Boston, by J. B. Murphy of Chicago, and one other.

On Wednesday afternoon the following annual addresses will be presented:

Gynecology—Anatomic Basis for Changes in the Menstrual Function, with lantern slide demonstration, by John G. Clark, Philadelphia, Pa., Professor of Gynecology in the University of Pennsylvania.

Ophthalmology—Reasons for Associating Functional and Organic Eye Troubles with Auto-intoxication, Hiram Woods, Professor of Diseases of the Eye and Ear, University of Maryland.

Medicine—Considerations Concerning Medical Examinations for the Requirements of Practice, W. S. Thayer, Associate Professor of Medicine in Johns Hopkins University.

MEDICAL SECTION.

Wednesday, May 8, 9:30 A. M.

1, A Reminder and Demonstration of Some Important Metazoan and Protozoan Parasites—Otto V. Huffman, Cincinnati. 2, Municipal Control of the Milk Supply in Ohio—Charles F. Tenney, Toledo. Discussion: Otto P. Geier, Cincinnati. 3, The Influence of the Nose upon Pulmonary Rales—Lawrence C. Grosh, Toledo, O. 4, The Early Diagnosis and Treatment of Syphilitic Disease of the Central Nervous System—Edmund Baehr, Cincinnati. Discussion: M. L. Heidingsfeld, Cincinnati. 5, Chronic Infectious Endocarditis—Oscar Berghausen, Cincinnati. Discussion: E. A. Wagner, Cincinnati.

Thursday, May 9, 9:30 A. M.

6, The Fundamental Factors in Cardiac Conditions—Paul G. Woolley, Cincinnati. Discussion: Alfred Friedlander, or John Greiwe, Cincinnati. 7, Alimentary Respiration. The Secretion of CO₂ by the Alimentary Mucosa and Its Relation to Eructation of Gas and Abnormal Inflation of the Stomach and Intestine—R. T. Woodyatt and Evarts A. Graham, Chicago, Ill. 8, The Anatomical and Physiological Effect of Iodin on the Thyroid of Exophthalmic Goitre—David Marine, Cleveland. 9, The Clinical Evidences of Relation between Basedow's Disease and Altered Function of the Thyroid Gland—C. F. Hoover, Cleveland. Discussion, Dr. Andre Crotti, Columbus. 10, The Sphygmotonomograph as an Aid in the Study of Cardio-Vascular Disease—Frank Winders, Columbus.

Thursday, May 9, 9:30 A. M.

11, The Treatment of Hemorrhagic Conditions with Normal Human Blood Serum—Louis A. Levison, Toledo. 12, Vaccine Therapy in Tuberculous Adenitis—W. G. Gardiner, Jr., Toledo. 13, The Value of the Roentgen Ray in the Diagnosis of Gastrointestinal Lesions—Hugh J. Means, Columbus. Discussion: John D. Dunham, Columbus. 14, Rabies and Its Prevention—James McL. Phillips, Columbus. Discussion: J. A. Hulse, Akron, or A. P. Cole, Cincinnati.

SURGICAL SECTION.

Wednesday, May 8, 9:30 A. M.

1, Surgical Lesions of the Stomach and Duodenum—W. D. Haines, Cincinnati. Discussion: G. W. Crile, Cleveland. 2, Acute Hemorrhagic Pancreatitis—C. N. Smith, Toledo. Discussion: J. F. Baldwin, Columbus. 3, The Relation of Gastrointestinal Displacement to Various Constitutional States—C. A. L. Reed, Cincinnati. Discussion: J. H. Jacobson, Toledo. 4, Stones in the Common Duct of the Liver—W. D. Hamilton, Columbus. Discussion: B. R. McClellan, Xenia. 5, Gastromesenteric Ileus—W. J. Gillette, Toledo. Discussion: M. A. Tate, Cincinnati. 6, Considerations in the Diagnosis and Treatment of Acute Intestinal Obstruction—C. E. Briggs, Cleveland. Discussion: B. M. Ricketts, Cincinnati. 7, The Choice of Anesthetic from the Surgeon's Standpoint, with Special Reference to Nitrous Oxide and Oxygen—R. E. Skeel, Cleveland. Discussion: C. A. Howell, Columbus. 8, Complications and Sequelae in Abdominal Surgery—F. F. Lawrence, Columbus. Discussion: J. V. Gallagher, Cleveland.

Thursday, May 9, 9:30 A. M.

1, The Influence of Modern Surgery on the Treatment of Fractures—H. A. Becker, Cleveland. Discussion: H. H. Heath, Toledo; H. T. Sutton, Zanesville. 2, Treatment of Hip Joint Disease—L. G. Bowers, Dayton. Discussion: A. M. Steinfeld, Columbus. 3, Management of Fractures and Ankylosis—H. J. Whitacre, Cincinnati. Discussion: George I. Bauman, Cleveland; Robert Carothers, Cincinnati. 4, Chronic Bone Abscesses—John Dickenson, Cleveland. Discussion: George Goodhue, Dayton. 5, The Operative Management of Compound Fractures—J. F. Barnes, Newark. Discussion: Harold Jacobs, Akron. 6, Malignancy with Special Reference to Diagnosis—S. A. Cunningham, Marietta. Discussion: J. Louis Ransohoff, Cincinnati. 7, The Prevention and Treatment of Surgical Shock—J. F. Fox, Toledo. Discussion: W. A. Ewing, Dayton. 8, The Prophylaxis and Therapy of Tetanus—Verne A. Dodd, Columbus. Discussion: Oscar Berghausen, Cincinnati; H. H. Schuffel, Canton.

OBSTETRICS AND PEDIATRICS.

Wednesday, May 8, 9:30 A. M.

1, The Present Status of the Feeding of Young Children—E. S. Everhard, Gertrude Felker, Dayton. 2, Some of the Mechanical Factors Involved in the Production of and Delivery of Face Presentations—Wm. Gillespie, Cincinnati. 3, Obstetrical paper (title later)—G. B. Booth, Toledo. 4, Indications for the Use of Obstetric Forceps—S. J. Goodman, Columbus. 5, (Title later)—Alfred Friedlander, Cincinnati. 6, Eugenics, Dynamics of Cause and Effect—Darlington J. Snyder, Columbus. 7, Face Presentation, Its Complications and Treatment—A. J. Skeel, Cleveland.

SECTION ON DERMATOLOGY, PROCTOLOGY, AND GENITO-URINARY SURGERY.

Wednesday, May 8, 9:30 A. M.

DERMATOLOGY.

1, Our Views after some more Experience with Salvarsan—A. Ravogli, Cincinnati. 2, The Treatment of Syphilis from a Salvarsan and

Serologic Standpoint—M. L. Heidlingsfeld, Cincinnati. 3, The Ionic Vaccine Treatment of Acne—W. I. Le Fevre, Cleveland.

PROCTOLOGY.

1, The Relation of Proctology to Urology—G. B. Evans, Dayton. 2, The Office Treatment of the More Common Anorectal Diseases—Wells Teachnor, Columbus. 3, Treatment of Anal Fissure Without Operation—James A. Duncan, Toledo.

GENITO-URINARY.

1, Surgery of the Kidney, Based on the Case Records of Ten Years—J. F. Baldwin and H. A. Baldwin, Columbus. 2, The Complement Fixation Test for the Cure of Gonorrhoea—E. O. Smith, Cincinnati. 3, Conservative Surgical Methods in Operating for Stones in the Kidneys—William E. Lower, Cleveland.

SECTION ON EYE, EAR, NOSE AND THROAT.

Wednesday, May 8, 9:30 A. M.

1, The Smith Operation from the Standpoint of an Assistant—J. W. Millette, Dayton. Discussion: C. F. Clark, Columbus. 2, Guarded Prognosis of Corneal Injuries—F. Jacobi, Toledo. Discussion: W. Snyder, Toledo. 3, The Relation of Accessory Cavity Disease to the Eye and Orbit—J. E. Brown, Columbus; Discussion: W. E. Bruner, Cleveland. 4, Metastatic Purulent Ophthalmia. Report of a Case of Puerperal Origin—W. F. Alter, Toledo. 5, The Rational Method of Removing Fragments of Iron from Interior of the Eyeball—F. W. Lamb, Cincinnati. 6, Some Observations Concerning Foreign Bodies Situated Deeply in the Eye and Orbit—W. K. Rogers, Columbus. Discussion: Charles C. Stuart, Cleveland. 7, The Relation of the Teeth to the Eyes—W. E. Bruner, Cleveland. Discussion: J. B. Stewart. 8, Radium Treatment in Case of Tumor of the Orbit—C. F. Clark, Columbus. Discussion: W. E. Bruner, Cleveland.

NOSE, THROAT AND EAR.

Thursday, May 9, 9:30 A. M.

1, Some Experience with the Yankauer Treatment in Tubotympanic Troubles—Harry B. Harris, Dayton. 2, Bacteriology of the Ear—E. M. Weaver, Akron. Discussion: R. G. Wise, Mansfield. 3, Congenital Adenoid—S. H. Large, Cleveland. Discussion: S. Iglauer, Cincinnati. 4, Speech Defectives—C. H. Means, Columbus. Discussion: J. E. Brown, Columbus. 5, The Treatment of Acute Inflammation of the Accessory Sinuses—J. J. Lasalle, Toledo. Discussion: W. B. Chamberlain, Cleveland. 6, Alcohol Injections in Tuberculous Laryngitis—W. Mithoefer, Cincinnati. Discussion: Charles S. Rockhill, Cincinnati. 7, Causes of Perforation of the Nasal Septum—W. B. Chamberlain, Cleveland. Discussion: Walter E. Murphy, Cincinnati.

NERVOUS AND MENTAL SECTION.

Wednesday, May 8, 9:30 A. M.

1, Chairman's Address: Some Phases of Nervous Ill Health and Their Psychological Control—H. H. Drysdale, Cleveland. 2, The Anxiety Neuroses—Louis Miller, Toledo. Discussion: R. Harvey Cook, Oxford; E. E. Gaver, Columbus. 3, Alcohol in Its Relation to Diseases of the Mind and Nervous System—W. D. Deuschle, Columbus. Discussion: G. T. Harding, Columbus; W. A. Searls, Cuyahoga Falls. 4, The Value of the Wassermann Reaction and Cytological Examination in Psychiatry, with Special Case References—H. B. Corlett, W. C. Stoner, Cleveland. Discussion: W. B. Laffer, Cleveland, and Guy B. Williams, Columbus. 5, The Mental Disturbances Associated with Osteitis Deformans (Paget's Disease)—C. W. Stone, Cleveland. Discussion: F. W. Langdon, Cincinnati; P. W. Tappan, Dayton. 6, Some Observations in Poliomyelitis—S. P. Fetter, Portsmouth. Discussion: R. C. Tarbell, Columbus; F. D.

Ferneau, Toledo; 7, D. I. Wolfstein, Cincinnati, subject to be announced.

Thursday A. M.

1, Tumors of the Hypophysis. Discussion: B. A. Williams, Cincinnati; T. A. Burke, Cleveland. Clinic at Dayton State Hospital.

SECTION ON HYGIENE AND SANITARY SCIENCE.

Wednesday, May 8, 9:30 A. M.

1, Remarks by Chairman—Walter Brand, Toledo. 2, Tuberculosis—C. O. Probst, Columbus. Discussion: Opened by Robert G. Patterson, Ph. D., Secretary Ohio Society for the Prevention of Tuberculosis. 3, Venereal Diseases—Mr. E. A. Deeds, Vice President National Cash Register Co., Dayton. Discussion: Opened by M. L. Heidingsfeld, Cincinnati. 4, Infectious Diseases—John H. Lowman, Cleveland. Discussion: Opened by Frank Lamb, Cincinnati. 5, Mills-Reinecke Phenomenon—Martin Friedrich, Health Officer, Cleveland. Discussion: Opened by Charles F. Tenney, Toledo. 6, Boards of Health and Conservation—J. H. Landis, Health Officer, Cincinnati. Discussion: Opened by Clyde E. Ford, Superintendent of Health, Cleveland.

Thursday, May 9, 9:30 A. M.

7, Conservation in Canada—Charles A. Hodgetts, Ottawa, Canada, Medical Adviser to the Commission on Conservation for Canada. 8, Water Purification—Mr. R. Winthrop Pratt, Cleveland, formerly Chief Engineer, Ohio State Board of Health. 9, Sewage Purification—Mr. W. C. Folsom, Cincinnati, Chief Sanitary Inspector, Department of Health, Cincinnati.

Resolution upon the Death of Gustav C. E. Weber.

Adopted by the Council of the Academy of Medicine of Cleveland, April 10, 1912.

In the death of Gustav C. E. Weber, we mourn the loss of a most distinguished member of our profession.

From the time he located here, to the end of a long and busy life, he secured and retained the honor and respect of the public and the profession.

He served his country loyally as Surgeon General of the State, increasing the efficiency and raising the standard of the Medical Corps.

Recognizing the necessity of clinical teaching in the preparation for the practice of medicine, he founded the Charity Hospital Medical College. His fame as a clinical teacher attracted many students and his skill as a surgeon extended his reputation far beyond our city. Later through his initiative a large sum was secured for the advancement of medical education.

In his relations with his colleagues, he was always courteous, and dignified. His intimate personal friends loved him; his patients worshipped him.

He has left an enviable example, a "void" that will never be filled, the memory of a devoted husband, an indulgent father, a good citizen, and a great surgeon.

Therefore, be it resolved that: We, The Academy of Medicine of Cleveland, do mourn his loss, and that a copy of this resolution be sent to his sorrowing widow.

Medical News.

The Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine of the Massachusetts Homeopathic Hospital.

Boston, was dedicated March 6. In its combination of hospital wards and private sick-rooms with laboratories for neurology, chemistry, pathology and pharmacodynamics, the Memorial, of which Frank C. Richardson is Medical Director, marks a distinct advance in medical teaching and research. At the opening exercises, in addition to remarks by state and city officials and by educators and social workers, addresses were delivered by Professors W. B. Cannon, F. B. Mallory, J. J. Putnam, E. E. Southard, G. G. Wilson and T. N. Carver, of Harvard University, and by Professor Timothy Leary, of Tufts Medical School.

The Warren Triennial Prize. This prize was founded by the late J. Mason Warren in memory of his father, and his will provides that the accumulated interest of the fund shall be awarded every three years to the best dissertation considered worthy of a premium, on some subject in Physiology, Surgery, or Pathological Anatomy; the arbitrators being the Physicians and Surgeons of the Massachusetts General Hospital.

The subject for competition for the year 1913 is on some special subject in Physiology, Surgery, or Pathology.

Dissertation must be in either the English, French, or German languages, and must be typewritten and suitably bound, so as to be easily handled. Work that has been published previously will not be considered in competition. The name of the writer must be enclosed in a sealed envelope, on which must be written a motto corresponding with one on the accompanying dissertation.

Any clew given by the dissertation, or any action on the part of the writer which reveals his name before the award of the prize, will disqualify him from receiving the same.

The amount of the prize for the year 1913 will be \$500.

In case no dissertation is considered sufficiently meritorious, no award will be made. Dissertations will be received until April 14, 1913.

A high value will be placed on original work.

Muskingum County Medical Society: At the regular meeting of March 13 the following program was presented: 1. Catarrh of the Middle Ear and Eustachian Tube, by L. F. Long, Zanesville. 2. The Tonsils and Adenoids—Their Relationship to the Physical and Mental Development of the Child, by F. S. Baron, Zanesville.

The Richland County Medical Society at its annual meeting was addressed by C. A. Hamann, of Cleveland, upon Some Acute Abdominal Conditions.

The Lakeside Hospital Medical Society: At the fifty-ninth regular meeting, held March 27, the program was as follows: 1. Menstruous Dysmenorrhea with Exhibition of Typical and Atypical Specimens, by C. D. Williams. 2. Presentation of a Case of Huntington's Chorea, by C. B. Craig. 3. Presentation of a Case of Mitral Stenosis with Multiple Embolism, by T. S. Keyser. 4. Presentation of a Case of Splenomyelogenous Leucemia with Unusual Complications, by H. L. Taylor. 5. Demonstration of Pathological Specimens, by H. O. Ruh.

Charity Hospital Medical Society: At the meeting held March 20 the following program was presented: 1. Presentation of Cases, by A. Graham and P. G. Moore. 2. Presentation of a Case of Aplasia Cranii Conjuncta, by N. P. McGay. 3. Postoperative Acute Dilatation of the Stomach, by F. C. Herrick. 4. Pyelitis with Report of a Case, by N. M. Jones.

At the meeting of the Ohio State Medical Teachers' Association, held in Columbus, April 5, the program was as follows: 1. President's Address, by John K. Scudder, Secretary of Eclectic Medical

College, Cincinnati. 2. Teaching Titles in American Medical Schools, by F. C. Waite, Professor of Histology and Embryology, Western Reserve University, Cleveland. 3. The Value of Didactic Teaching, by R. L. Thomas, Dean of Eclectic Medical College, Cincinnati. 4. The Value of Laboratory Teaching, by F. L. Landacre, Professor of Histology and Embryology, Starling-Ohio Medical College, Columbus. 5. The Relative Importance of Laboratory Teaching, by L. C. Brewer, Associate Professor of Surgery, Toledo Medical College, Toledo. 6. Team Work, by E. O. Adams, Professor of Medicine, Cleveland Homeopathic Medical College, Cleveland. 7. The Teaching of the Pediatrics of Today, by H. J. Gerstenberger, Assistant Professor of Pediatrics, Western Reserve University, Cleveland. 8. A General Discussion upon the Premedical Year: Physics, Biology, Chemistry, Language.

R. R. Barrett has removed from Mansfield to New London, where he will engage in practice.

T. N. Alban has purchased a ranch in Alberta, Canada, and expects to retire after many years in general practice at Mansfield.

J. F. Burnett has located in Plymouth.

Wayne Mecklem has taken up the practice of medicine with his father, William Mecklem, at Mansfield.

F. G. Novy, Professor of Bacteriology in the University of Michigan, was the guest of Alpha Omega Alpha Society at its annual meeting, April 13.

The Isabel Hampton Robb Memorial, 2100 East 46th Street, a home and social and professional center for the graduate nurses of Cleveland, was dedicated April 9.

Funk and Wagnalls Company announce that they have secured the American rights to "A System of Surgery," edited by C. C. Choyce, Dean of, and Teacher of Operative Surgery in, the London School of Clinical Medicine.

C. E. Ford, Superintendent of Health of Cleveland, has been named a delegate from the American Association for the Study and Prevention of Infant Mortality to the Fifteenth International Congress on Hygiene and Demography.

Deaths.

Winfred VanDeren Blythe, of East Youngstown, died March 8, aged 28.

Wray Beattie, of Newark, died February 29, aged 81.

George Ralph Schuster, of Dayton, died March 13, aged 37.

Albert Merrill Webster, of Lorain, died March 14, aged 37.

Nelson Scott Blue, of Defiance, died March 13, aged 50.

Gustav C. E. Weber, of Willoughby, died March 21, aged 85.

Thomas O'Brien, of Cleveland, died March 15, aged 60.

Alfred Buckingham, of Camp Dennison, died March 23, aged 79.

William H. Barcroft, of Coshocton, died March 17, aged 59.

Samuel Thomas Keith, of Canton, died March 28, aged 67.

James L. Shirey, of Akron, died April 8, aged 60.

George Arthur Brown, of Barberton, died April 6, aged 38.

Abraham Jeremiah Hammer, of Toledo, died April 5, aged 58.

Robinson Bell, of Toledo, died March 29, aged 52.

John Allen Hubbs, of Youngstown, died March 27, aged 72.

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No. 5

Vascular Suture and Some Considerations Regarding Its Successful Execution and Application.

By C. C. GUTHRIE, A. M., M. D., Ph. D., Professor of Physiology,
University of Pittsburgh.

The history of vascular suture is so well known that it will not be presented in detail. Various methods of closing wounds in blood-vessels have been suggested and tested. The one that gives the most uniformly satisfactory results is essentially the same as the method of union of divided vessels. The margins of the vascular walls are united by means of continuous stitches. Fine thread and cambric needles are employed. The stitches embrace all coats of the wall and the margins of the wound are drawn evenly and snugly together, the sutured ends being everted so that the intimal surfaces come into contact.

Of course, it is necessary to observe certain precautions in handling blood-vessels in order that they may not be unduly injured, as is true of any tissues operated upon, as for example, the intestines. This is of special importance in temporarily shutting off the blood in the vessel at the point of operation. Usually this is safely accomplished by means of ordinary serrefine or bull-dog forceps.

Before suturing a vessel all liquid or clotted blood should carefully be removed from the region in which the circulation has been shut off. Salt solution may be employed for this purpose, but under experimental conditions this is unnecessary, as the fluid is readily removed from the opened vessel by sponging. The use of oil or other similar substance, such as vaseline, upon the threads used for suturing, facili-

An address presented before the Experimental Medicine Section of the Academy of Medicine of Cleveland, Friday, March 8, 1912.

tates the operation, but is not essential for successful suture of medium vessels. It is desirable to prevent undue drying of vascular tissues exposed during the operation. A little oil applied to such surfaces is a ready and satisfactory means of accomplishing this purpose. When suture of the vessel is complete and the circulation is reestablished, if the operation has been successful, only slight hemorrhage will occur, and usually this is readily controlled by applying a dry sponge with gentle pressure to the bleeding points. If this does not control the hemorrhage within a minute or two any spurting points may be closed by picking the vessel up on the finger and introducing one or two simple stitches across the gaps.

In a successful operation the primary leakage from the vessel is through the needle holes, but these quickly become clogged with a fibrinous deposit so that the vessel is impervious. This deposition of fibrinous material is a very essential phenomenon. In fact, it bears the same desirable relation to vascular suture as clotting does to any other wound. Such fibrinous deposits are, therefore, to be considered as of a benign character. The deposit in successful suture operations is limited, so that it forms a thin surface between the point of operation and the vascular lumen. In the case of end-to-end union of divided vessels it is obvious that this deposit will assume the form of an encircling band within the lumen, but in properly executed operations this does not appreciably affect the circulation at the point.

The factors of coagulation concerned in this phenomenon are of great interest. In order to test the relation of the suture material to the fibrinous deposits we have recently carried out a series of simple observations.

The experiments consisted in exposing both common carotid arteries and external jugular veins of anesthetized dogs and transversely penetrating the walls and lumen of each vessel with a cambric needle threaded with from one to twenty-four threads such as are used in the suture of small blood-vessels, and then drawing the suture through and loosely tying its ends about one-half of the vessel (Fig. 1). Some of the threads were treated with oil while others were simply sterilized. At the end of twenty-one days the animals were quickly killed with chloroform, a cannula was inserted

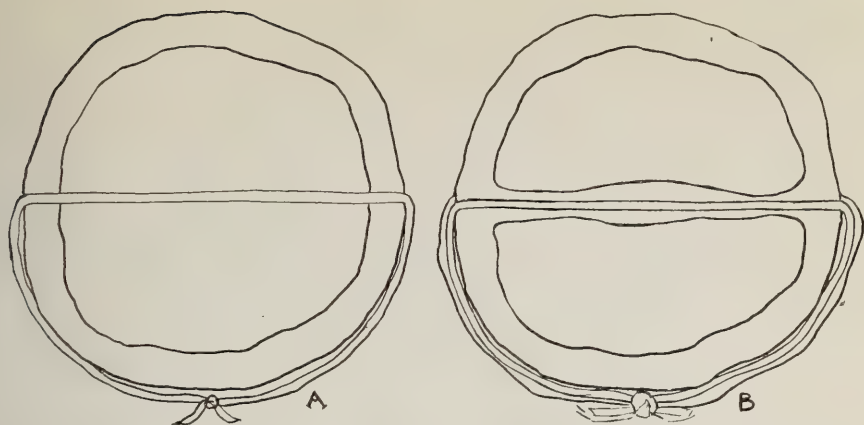


Fig. 1. Diagram showing appearance of ligature crossing lumen of blood-vessel. A. Immediately after operation. B. Twenty-one days later.

in the central end of the thoracic aorta, the inferior vena cava and base of the heart were firmly ligated and an opening made in the superior vena cava. Then, by means of 0.9 per cent sodium chlorid solution, introduced under pressure through the cannula in the aorta, the blood from the upper portion of the animal was washed out. As soon as the liquid escaping from the opening in the superior vena cava became practically free of corpuscles a 0.9 per cent sodium chlorid solution, containing 10 per cent of formalin, was substituted for the plain sodium chlorid solution, and this was allowed to flow through the vessels until the liquid escaping from the vena cava gave off a strong odor of formaldehyde. The superior vena cava was then ligated above the opening made for the escape of the liquids and the aorta above the cannula through which the solutions were introduced. The animal was not further disturbed for several hours, giving the formaldehyde time to strongly fix the tissues. The vessels in the neck were then exposed, and specimens taken and carefully examined. In no instance was there an occluding thrombus, and in most cases the patency of the lumen was preserved on both sides of the thread.

The threads were coated with a substance not unlike the intima in appearance. Human hair was also tried and gave like results. No marked differences were apparent in the results from the oiled and the untreated threads.¹

Microscopical Examination*: Six arteries and as many

*I am indebted to Doctor Samuel Haythorn for this description and the accompanying microphotographs.



Fig. 2. Microphotograph showing condition of ligature crossing lumen of blood-vessel twenty-one days after operation. A. Artery. B. Vein.

veins were examined microscopically, and with the exception of one instance where the hair was used, all of the sutures, as they lay in the lumen of the vessel, were enclosed in a fibrous sheath. The membrane is best described in three layers. It consisted of an inner layer composed of loose connective tissue, which closely surrounded the silk fibers and extended between them. This layer was infiltrated with endothelial leucocytes, compound granule cells, foreign body giant cells, and occasionally with lymphocytes and polynuclear leucocytes (Fig. 2).

The intermediate layer was composed of dense adult

fibrous connective tissue, which presented cone-shaped enlargements at its junctions with the vessel wall. It was continuous with the connective tissue of the adventitia, which came through the muscle coats with the thread. In one of the arteries the muscle also appeared to extend into the sheath. A few new capillaries were seen in the basal portions close to the vessel wall. The outer layer was made up of loose meshed connective tissue, contained all types of infiltrating cells, and was covered with a definite layer of endothelium, which was continuous with that lining the vessels.

In the left common carotid artery of Dog 1, the inner layer about the sutures was densely infiltrated with polymorphonuclears and with phagocytic endothelial leucocytes, and presented the appearance of an acute infection. Attached to one point of this membrane was a piece of old hyaline thrombus and some freshly formed clot. The thrombus was not observed in contact with the vessel wall.

In the instance where the hair was used no new connective tissue was formed. The hair was enclosed in a layer of endothelium and surrounded by a loosely built hyaline thrombus (Figs. 3A and 3B).

After end-to-end suture of a divided blood-vessel, the intimal surface presents a band-like area which encircles the lumen. This extends on either side of the line of division to the needle punctures. The stitches depress the intimal tissues between the points of their entrance and exit, and thus appear as lying in grooves. This gives the suture area a corrugated appearance. The threads appear to fill the needle holes, but their surfaces are exposed to the lumen of the vessel as they pass across the intima. The junction of the intimal edges is to be seen as a transverse line. Little, if any, raw surface is visible. No knots are present, as they are tied on the external or adventitial surface of the vessel. On the whole, from the intimal surface, the anastomosis presents a smooth, though somewhat corrugated or puckered appearance. With a lens, roughened intimal margins and even small gaps may be observed along the line of approximation of the intimas, and many or all of the needle holes, particularly on the sides away from the suture field, show raw areas and surfaces.

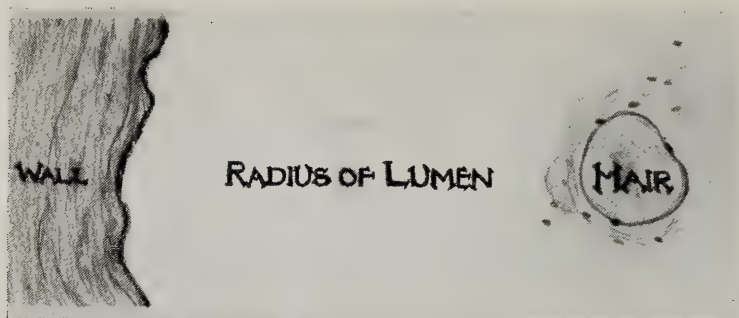


Fig 3A. Diagram indicating relation of cross-sectional area of hair to that of vascular lumen. The hair is enlarged approximately one hundred times more than the lumen, as shown in the diagram.

Conditions favorable to fibrin deposition are, therefore, present at the site of suture. That is, foreign surfaces are presented to the blood. The raw tissue surfaces of the vessel walls, exposed by gaps in the intima, are capable of yielding thrombokinas, and are therefore active coagulant agents. And the threads are not without some coagulating action. It is true that the total area of such foreign surface does not seem very great relative to the whole intimal area, but it could not be predicted with certainty, from the facts thus far stated, whether or not an occluding thrombus would be formed at the point.

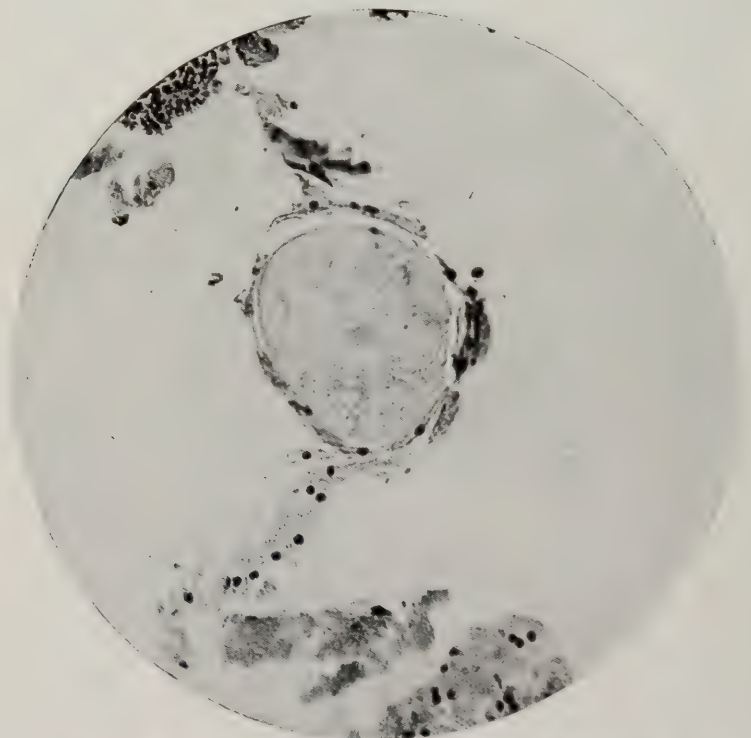


Fig. 3B. Microphotograph showing cross section of hair.

But the results of examination of blood-vessels sutured together, as described after intervals of days and weeks, and up to more than five years after the operation, show that fibrinous deposits are relatively slight, and very soon undergo resorptive changes and become protected with an intima-like covering; that the exposed threads are also quickly covered with a similar coating, so that if examined with a lens the whole intimal surface appears to be continuous; and that the patency of the vascular lumen may be preserved as far as its circulatory function is concerned. Though coagulation occurs, the technique is satisfactory from the practical standpoint—namely, the avoidance of the formation of an occluding thrombus, or a thrombus of size sufficient to seriously retard the circulation.

The occurrence of clotting in the manner described, and of the nature later considered, is regarded as a regular phenomenon of blood-vessel suture. It is looked upon as favoring the union of disrupted endothelial surfaces, for it acts not only mechanically in closing all minute openings through which blood might escape, but it quickly results in causing the endothelial surface to present a continuous, smooth, inert surface to the blood, thus restoring approximately the conditions of a normal blood-vessel.

The mechanism limiting the extent of such fibrinous deposits is not clearly understood. But consideration of the reaction, produced by introduction of fibrin ferment into the circulation, is of interest—namely, the increase of antithrombin in the blood. It would seem that following blood-vessel suture, since clotting occurs and it is possible that some fibrin ferment is formed that passes off into the blood-stream, a similar reaction may be induced. But the amount of ferment absorbed by the blood is probably very small, as the mass of the clot is slight, and fibrin is known to bind fibrin ferment. Therefore such reaction is probably too small to be detected by present experimental methods. So the formation of anti-coagulant substances in this manner would seem to be a possible, though probably not a very powerful factor in limiting the clotting. Experimental observations indicate that the magnitude of such thrombus formation varies indirectly with the circulation, i. e., the mass of blood per unit of intimal

surface. This might be interpreted as being in favor of the anticoagulant view by supposing that, if a small increase in this property were induced by fibrin ferment as described, under conditions where the amount of blood passing over a unit area of intimal surfaces was large, the anticoagulant action would be enhanced by the exposure of the injured surfaces or thrombus-covered surfaces to a greater quantity of blood, hence a greater quantity of anticoagulant substance would act upon a given area in a given time. But the character of the thrombi and a consideration of the mechanism of coagulation indicate that other factors are perhaps of greater importance. In brief, the thrombi are largely of the lamellar white type. Preceding their appearance, it is probable that the platelets and white corpuscles coming in contact with the raw surface, which, indeed, may actually attract them, or cause them to accumulate as by an agglutinative process, are so altered that the essential fibrin ferment pro-substances, thrombogen and thrombokinase, are liberated. And since calcium is present, fully formed ferment quickly appears at the site of injury. Direct coagulative processes then follow, and the raw surface is soon buried. That an adhesive mechanism exists is indicated by the gathering of the white blood-cells and platelets at the point, and by their clinging to the raw surface of the thrombus itself. But the nature of the process is not understood.

It seems reasonable to suppose that the degree of injury suffered by a blood-cell through contact with a foreign surface will, within limits, vary with the period of exposure. And since it is through injury to the cells that the pro-fibrin ferment factors are liberated, the amount of these will vary in the same way. If this is so, then it follows that a blood-platelet or white corpuscle would be more exposed to a given surface in inverse proportion to the speed with which it is carried; and that the degree of injury, hence the amount of pro-ferment factors liberated, would likewise vary with the circulation. Further, the number of blood-platelets or white corpuscles, in proportion to the mass of blood passing through the vessel, which come directly in contact with the wall varies indirectly with the diameter of the blood-stream, and there-

fore the tendency for coagulation per unit mass of blood will, from this standpoint, be greater in a small one.

But since the same sizes of needles and threads are used for vessels in the smaller class, which individually vary greatly in size, not only are the needle punctures and stitch trauma proportionately greater collectively in the smallest vessels, but individually as well.

The recent work of Howell on the mechanism of coagulation is of interest in interpreting the coagulative phenomenon observed in vascular anastomoses. Briefly, he considers that normal coagulation is prevented within the vessels owing to an excess of antiferment. According to this view, tissue juices supply a substance termed thromboplastin, which has the property of neutralizing such antiferment. So when shed blood comes in contact with raw tissue surfaces its antithrombin becomes neutralized through contact with thromboplastin and fibrin is formed.²

Summed up, it appears that a large number of factors may enter into coagulative processes and their limitation. Thrombus formation, after intimal injury, or after the introduction of a foreign body into the lumen of a blood-vessel, as a suture, will vary directly as to (1), the ratio of injured or foreign surface to the diameter of the lumen of the vessel; or (2), the degree of cupping or pocket formation at the abnormal point; (3), the coagulability of the blood. And it will vary indirectly as (1), the diameter of the vessel; or (2), the amount of blood passing the point in a given time; and (3), the velocity of the blood, i. e., as the ratio of unit mass of blood to endothelial area.

Exact values of these factors or methods of determining them in most cases are wanting, so it is impossible to express by an exact formula the ratios existing when thrombus formation proceeds beyond the desirable degree.

Neither general nor local specific anticoagulant agents, such as leech extract (hirudin), have been employed in my experiments. Such agents have been used in vascular suture, e. g., peptone and leech extract (hirudin) by Floresco.³ But successful results are easily achieved without them. A certain amount of thrombus formation is desirable in the repair of the blood-vessel to stop small openings and prevent oozing,

and it would be undesirable to diminish general coagulability on account of the danger of the difficulty that would ensue in securing a "dry" wound.⁴

Morphological Results of Vascular Suture: In addition to simple suture of wounds and vessels many anastomotic combinations have been successfully performed, as end-to-end and lateral anastomoses between arteries, and between veins, and between arteries and veins. Also, vascular segments have been introduced between the ends of divided vessels, as a segment of vein between the ends of a divided common carotid artery. Vascular segments from animals of different species and segments preserved on ice,⁵ or in an antiseptic, such as a solution of formaldehyde,⁶ have been engrafted with success. Nonvascular tissue, as peritoneum⁷ and materials of other than animal origin, also may be successfully employed for closing openings in blood vessels.

In a simple vascular suture, or when a vessel is divided and the ends anastomosed by suture, only slight changes occur, and these are confined to the vicinity of the line of suture. When an artery and vein are divided and the central end of the artery anastomosed to the peripheral end of the vein, relatively slight changes occur in the arterial part of the new vessel, but the venous portion may undergo considerable alteration.

The following protocol of an experiment shows the results of arteriovenous anastomoses, after more than five years:

Dog 0. Anastomosis between the central end of the right common carotid artery and the peripheral end of the right external jugular vein; and between the peripheral end of the right common carotid artery and the central end of the right external jugular vein.

The animal made a prompt recovery. Pulse and thrill in the peripheral end of the external jugular vein. That the pressure in the vein was less than arterial was indicated by the relatively slight pressure on the peripheral portion of the vein adequate to occlude the lumen, such pressure presumably being applied distal to anastomotic branches. By palpation it could be demonstrated readily that the pressure in the peripheral end of the external jugular vein was greater than in the unoperated vein. The animal remained in ex-

cellent condition and gave birth to three litters of pups. More than five years after the operation the animal was killed in a fight with other dogs. At the last observation, sixteen days prior to death, the circulation was excellent. The day preceding death the animal was in good condition. At postmortem examination clotted blood was found in and between the subcutaneous and deeper tissues, but especially in the carotid sheath. The carotid artery on the operated side was found and traced to where it passed out through the neck muscles. It was strongly adherent to the muscular fascia at the point of adhesion. On opening the vessel longitudinally, the line of anastomosis was located by the lighter color of the intima on the arterial side. By holding the specimen in a good light it was possible to make out about twelve slight longitudinal markings that in position corresponded with the position of the stitches. The intima on the venous side was smooth, but the surface somewhat corrugated, due probably to the puckering of the vein necessary in order to reduce it to the size of the artery at the point of anastomosis. A few millimeters above the line of anastomosis a small flattened pear-shaped mass was seen projecting slightly into the lumen of the vessel. It was continuous above with the wall, but the narrow portion directed downward was free. Passing the blade of a small pair of dissecting forceps upward beneath the free extremity, the point emerged through an opening near the center of the attached portion. This channel no doubt transmitted blood during the life of the animal, and together with the free point projecting into the blood-stream was probably concerned in the production of the marked thrill which was so pronounced in the circulation in the peripheral end of the vein. The central end of the artery below the anastomosis was much more elastic than the peripheral end of the vein above the anastomosis. At the point of anastomosis a ridge was felt.

The line of anastomosis between the peripheral end of the artery and the central end of the vein was discovered by feeling a rather hard mass about the size of a pin's head. On opening the vessel longitudinally this was found to be a localized thickening of the wall, due probably to puckering of the

vein. The ligature was seen at this point beneath the intima, which was smooth and glistening.

The extensibility and elasticity of the vein below the anastomosis, tested by stretching with the fingers, was greater than that of the vein on the opposite side, but a little less than that of the artery above the anastomosis. The elasticity of the artery above the anastomosis was about the same as that of the artery on the opposite side, but the resistance offered by stretching the artery above the anastomosis was less than the normal artery.

Histologically the wall of the unoperated artery appeared normal.

The wall of the central end of the operated artery was slightly thicker and the lumen smaller, and the intimal surface more corrugated than the unoperated artery. The thickening was chiefly medial and periadventitial. The tissues otherwise appeared normal.

The wall of the peripheral end of the operated artery was thicker, and the lumen smaller, and the intimal surface more corrugated, than in the central end. The thickening was chiefly medial; otherwise normal.

Quantitatively, the cross-sectional area of the muscular tissue of the media of the peripheral end of the operated artery was not increased, although the thickness of the media was increased.

The wall of the unoperated vein appeared normal. The lumen may have been somewhat enlarged owing to the increased functional demands made upon it.

The wall of the central end of the operated vein was thicker and the lumen smaller than in the unoperated vein. In structure it was densely fibrous, particularly the adventitial and periadventitial layers.

The wall of the peripheral end of the operated vein was thickened and the lumen, excepting for a short distance beyond the anastomosis, was smaller than the lumen of the unoperated vein. There was a fibrosis of all coats, especially of the muscular and adventitial. The muscle fibers were pale and the layers widely separated by fibrous tissue. The fibrous tissue had a less band-like arrangement and was more homogeneous than in the central end of the vein.⁸

Changes in engrafted segments have received considerable attention. In the case of a venous segment interposed between the ends of a divided artery in the same animal, considerable alteration occurs. In general the results are similar to those just described in the peripheral end of the vein and the central end of the artery.

Attention is called to the fact that I have not observed muscular hypertrophy, which is opposed to the observations of Watts,⁹ and to the more recent observations of Fischer and Schmieden,¹⁰ who reported an augmentation in muscular elements, both in size and numbers. But Watts did not especially study such changes, as he was investigating primarily the larger problem of the feasibility of vascular anastomosis. On the other hand, Fischer and Schmieden devoted special study to the matter. Also my studies indicate that the muscular tissue of a segment of vein engrafted between the ends of a divided artery progressively decreases. This indicates that a certain time is required for the disappearance of such tissue failing to survive. And since the disappearance of a tissue after death is due to disintegrative and absorptive processes, and since the absorptive mechanism is no doubt thrown out of gear, owing to interruption of the circulation in the capillaries of the vascular wall, such a result would be anticipated. This point very probably would do much in explaining the persistence of muscular tissue in engrafted vascular segments for considerable periods, and especially in tissues previously treated in such a way as to destroy or greatly lower their vitality, as preservation in formaldehyde solution, or cold storage. And to demonstrate the force of the argument it is only necessary to observe the time required for the disappearance through absorptive process of a thread of catgut introduced into the tissues.

In the case of an arterial segment simply engrafted between the ends of an artery immediately after its removal, at most but slight changes are observed in its gross or histological structure.

Engrafted vascular segments from different species of animals or of formaldehyde-fixed segments may undergo very great gross and histological alterations.

As long ago as 1908, I became convinced that engrafted

vascular tissues did not need to survive in order that patency of the vascular lumen be preserved.¹¹

On the basis of the histological study of a segment of rabbit's aorta engrafted between the ends of a divided common carotid artery of a dog,¹² and the successful engrafting of a formaldehyde-fixed segment of dog's vena cava between the ends of a divided common carotid artery of a dog, I was led to conclude that the elements of such engrafted segments to meet the vascular requirements need not, and probably do not, survive, but that for a time they may mechanically perform the circulatory function and serve as a bridge for the ingrowth of the other cells, and themselves ultimately suffer degenerative, disintegrative and absorptive changes. For the segment of rabbit's aorta on dog's carotid artery was adequately transmitting the arterial blood eight months after the operation. Yet the gross appearance of the segment was vastly altered, being greatly enlarged, the walls thickened and hardened (calcified). And, though performing an adequate circulatory function, the tissue elements of the formaldehyde-fixed and absolute alcohol treated segment could not be considered to have survived.¹³ Observations by others have confirmed this view.¹⁴

Discussion of Morphological Results: It might be anticipated that such experiments would cast light on the nature of the processes resulting in the pathological conditions of similar anatomical character observed in blood-vessels, e. g., arteriosclerosis.¹⁵ But notwithstanding the soundness of the theoretical considerations, the information to date does not distinctly advance our knowledge of such pathological processes.¹⁶

Anatomical changes in engrafted vascular tissues vary extremely. Rapidly made autografts may show but slight structural changes, while heterografts similarly made may show great changes. Autografts made with tissues exposed to the prolonged action of harmful agents, such as salt or formaldehyde solutions, show similar alterations, the degree of such apparently bearing a close relation to the degree of harmful influence to which the tissues have been exposed.

Other factors, such as character of the blood and direction of the blood-stream, alterations in the blood-pressure, and discontinuity of lymphatic and nervous connections, though

perhaps not without influence, probably are of a lesser magnitude of importance in determining such structural changes. This applies particularly to the character of the blood, the direction of the blood-stream, and the discontinuity of lymphatic connections. Lastly, the interruption of the nutrient blood-channels, the vasa vasorum, very probably introduces a factor of appreciable magnitude.

The explanation of the structural changes observed in engrafted and in anastomosed blood-vessels are essentially physiological. In some cases, certain tissues—e. g., inner intimal cells—may present more or less normal characters, while others—e. g., muscle—wholly disappear. Between these extremes various degrees of normality of the tissues occur. There is an increase in certain tissues, e. g., fibrous. Such differences are due, no doubt in part, to differences in situation. It is believed that the endothelial cells of the intima are able to perform adequate metabolic processes directly with the blood in the lumen of the vessels, which may be termed “functional blood” in contradistinction to “nutritional blood” in the capillaries of the vasa vasorum. The exact depth to which such an adequate metabolic commerce between the functional blood and the tissues may penetrate the vessel wall is not known but perhaps not beyond the deeper tissues of the intima; for it is said that degeneration of the media is often primarily due to obliteration or obstruction of the vasa vasorum and consequent defective nutrition of the muscular fibers. Similarly the outermost layer of the wall of the vessel would be in a better position to carry on metabolic processes with the blood in the vessels of adjacent tissues than the deeper middle layer. Since it is known that the circumferential elements of tissue masses simply engrafted,¹⁷ i. e., without vascular anastomosis, present evidences of better survival than those more centrally situated, the more marked retrogressive changes in the middle coat of such transplanted vascular segments is not surprising.

Also a possible difference in the resistance of the vascular tissues affected by the operation to the abnormal conditions must be considered. It is well known that different tissues exhibit different resistances to anemia, not only as evidenced by tenacity of preservation of function, but by ability of re-

cuperation of function under resuscitatory measures, and by preservation of anatomical structure. Illustrative of these properties is the picture presented by an animal (cat), in which the arterial circulation to the head is suddenly decreased or entirely shut off. The most highly developed centers (cerebral) appear to succumb first, as shown by loss of consciousness, then the eye reflexes, the respiratory center, etc., in the order given, the entire process occupying but a minute or two.¹⁸ The same picture is seen in a head after rapid amputation, as in a fowl's head struck off with an axe.¹⁹ The train of clinical expressions of the passing of the nervous tissues into a state of objective inactivity is surprisingly constant.

After all the clinical evidences of nervous activity have disappeared under cerebral anemia, return of function, as indicated by clinical manifestations (reflex and voluntary movements) may be witnessed. In general, recovery may be said to take place in inverse order to the susceptibility of the tissues to anemia (asphyxia). If the period of inactivity be not too long, evidences of complete recovery of even all of the highest nervous activities may be seen. If, however, the period of anemia be prolonged beyond a certain time, only the so-called lower centers—e. g., the respiratory—may appear to completely recover, the highest ones showing only partial recovery, or evidences of their recovery may be entirely wanting. Indeed, a condition in cats resembling insanity has been observed following resuscitation of the brain after a prolonged period of anemia.

The changes wrought in the cells of the tissues of the central nervous system by asphyxia also point to the conclusion that a relative susceptibility to an adverse condition exists in the elements of the nervous tissues. That such changes occur has long been known, but recently Pike and Gomez²⁰ have studied the tissues of brains and spinal marrows which had been subjected to varying periods of anemia, the results of which point most clearly to the conclusion above stated. It may be remarked that drugs, various abnormal states, and even functional states, as fatigue, produce similar cytological changes. And, further, since all these conditions affect the respiration of the tissues, the known tendency in many cases being toward asphyxia, to me these facts are

evidences of the correctness of the view that many drugs produce certain symptoms in virtue of properties of interfering with respiratory processes, and that the same is probably true in many pathological and abnormal conditions, not ordinarily attributed to asphyxia.

From this standpoint it would seem that to attribute the primary clinical changes to such cytological alterations (chromatolysis, etc.) is illogical. To illustrate: If an animal's head be struck off, and a bit of tissue from the brain be removed after ten minutes or so, and fixed and examined cytologically, relatively slight evidences of chromatolysis, etc., will be seen as compared to a similar tissue taken from a similar animal after resuscitation from apparent death from a period of cerebral anemia (asphyxia) of the same length. Now, abnormal clinical symptoms after resuscitation cannot properly be attributed to the cell changes, asphyxia being the primary cause. Indeed, after such treatment such a cell may perhaps remain in a state of asphyxia owing to the injury wrought by the primary asphyxiation. Hence the view that much light can probably be thrown on the clinical phenomena following the administration of drugs (poisons), as well as those observed in numerous abnormal and pathological conditions from the standpoint of tissue respiration, seems worthy of further pursuit.

Thus different tissues exhibit differences in susceptibility to anemia (asphyxia) and in powers of recuperation. In general, it may be said that the more highly organized and developed a tissue, the more delicate it is in this respect. Any such general statement, however, only roughly approximates the order in which the tissues stand in susceptibility to asphyxia.

More specifically, the more abundant tissues found in segments of arteries and veins probably stand in about the order of nervous, muscular, fibrous, and endothelial as regards susceptibility to anemia (asphyxia, autolysis, etc.). The basis of the statement for nervous tissue is the common belief that nerves denegerate when cut off from their "trophic centers," and only reappear by an ingrowth from the central tissues. A good illustration of the resistance of the intimal endothelial cells is the observation that, subjected to autolytic

conditions, the endothelial cells of the intima exhibit the strongest resistance.²¹

Finally, the regenerative powers of the tissues have to be taken into account, as a very considerable difference in this respect is known to exist. It is commonly held that in mammals the cells of the central nervous system, and muscle fibers as well, are incapable of regeneration or possess but feeble powers, while epidermal and fibrous tissue exhibit a very marked ability in this respect. Also, fibrous tissue is prone to replace other tissue that has suffered destruction, either by trauma or through retrogressive processes due to numerous agencies. As illustrative of the remarkable proliferative powers of the intimal cells, and of very striking interest in connection with complete biterminal vascular transplantations, is an observation by Professor Adami. He found a complete intimal lining in an aortic dissecting aneurism which extended from the thoracic to the iliac region, the case presenting a history indicating that the aneurism was of not more than a few weeks standing.

It is interesting to consider the results observed after simple injury of the intima, as well as intimal interruptions such as occur in vascular anastomoses. It will be recalled that these findings show that at a time when the reparative processes have resulted in the gross appearance of intimal repair (lamellar white thrombi), microscopical examination shows that the newly laid down materials are not identical in appearance with normal intimal endothelium. Indeed, it is shown by the occurrence of nonoccluding thrombi that abnormal surfaces may simulate an intimal surface in being smooth and glistening, and in being at least inert in so far as inducing fibrin deposition from living blood in contact with its surface is concerned. An observation by Guthrie in 1830 is interesting. The left subclavian artery was closed at its origin by a coagulum, leaving a channel through the center for the blood-stream. The canal seemed smooth, as if lined by a false membrane.²² The question naturally follows: May tissues of nonintimal origin assume the general character and functionate adequately in place of a normal surface? Or is such restitution of intimal continuity achieved by the ingrowth of neighboring intima, or by the outgrowth or pene-

tration of intimal tissues through the fibrinous deposit from the bottom of the wound? It seems probable that an extension of the experiments described earlier (page 318), dealing with the introduction of foreign materials into the blood-stream, will lead to definite conclusions in the matter.

The character of the blood circulating in an engrafted segment or anastomosed blood-vessel may have an influence in determining the resulting structural changes. For example, a vein may be caused to carry arterial, and an artery venous blood. Since, as before stated, the tissues near the intimal surface are said to take nourishment from the blood in the lumen of the vessel, such alteration of the blood may be an appreciable factor in the results; normally the metabolism of such tissues in veins may be considered as attuned to venous blood, and such tissues in arteries attuned to arterial blood. In the former case, arterial blood would at first sight appear to favor greater activities on the part of such tissues, but this cannot be considered as established until more data are obtained. The mere carrying of more blood to a part, or the better arterialization of blood, is not necessarily followed by increased activity on the part of the affected tissues. Indeed, there is evidence that the opposite condition, a condition similar to a state usually considered as peculiar to the pulmonary respiratory mechanism, termed "apnea," which is believed to be associated with a decrease of carbon dioxide in the blood and may be observed after a period of rapid pulmonary ventilation, may result. On the whole, the theoretical evidence is much stronger that tissue normally supplied abundantly with arterial blood, e. g., an artery, would be more affected by causing the blood-supply to become venous.

Direction of the blood-stream is possibly another factor in the results. But excepting for the valves in veins, no strong argument either for or against the view can, so far as I am aware, be decisively supported at the present time.

Alteration of blood-pressure is a factor of great interest not only in the interpretation of structural alterations in operated vessels, but also when considered in connection with sclerosis and related conditions often found in blood-vessels. In the case of a segment of a large vein engrafted between

the ends of a divided artery, the pressure in the segment is greatly and continuously increased. For the maximum pressure in a vein, such as the external jugular, as a rule is not more than the equivalent of a few millimeters of mercury, while the pressure in such a vein engrafted upon a large artery, such as a common carotid, is increased enormously.

The resulting structural changes observed in such a segment have already been described, so it will be enough to say that, compared to a similar venous segment engrafted between the ends of a divided vein, the changes appear to be much more pronounced, though it must be stated that a sufficient number of exact observations on the latter operation are as yet wanting. But enough is known to warrant the conclusion that structural alterations suffered by a venous segment on an artery are the more marked.

An analysis of the physical factors resulting from such an increase in pressure in the lumen of the vein is interesting. First, the tissues of the wall are subjected to an abnormal strain, and, although physically adequate to withstand the pressure, the ultimate effect of the strain on the tissues is problematical. It has been suggested that the thickening of the wall of such a venous segment is due to strain hypertrophy.²³ But if I rightly understand the interpretation of hypertrophy, in the light of the results stated earlier I cannot accept this view. For the hypertrophy meant is in the nature of an active process, the physiological (noninflammatory) response of the tissues to an increased functional demand, resulting in an abnormal development of the tissue elements.

Now the question arises: Can the increased work thrown upon the transplanted venous segment (ignoring the pernicious influences introduced by the operative procedures, as well as the resulting unfavorable nutritional conditions) be considered as moderate? Also, do the resulting structural changes conform to the picture of a work hypertrophy? To me it seems that only a negative answer can be given. Take, for instance, the structural changes. My observations lead to the conclusion that the muscularis wholly disappears within a few weeks, and the thickening is greatest, not in the intima, as might be anticipated from the more favorable

nutritional situation, but in the outer coat. The picture is one of overwork, a passive rather than an active condition.

The overstrain placed upon the tissues, as well as the compression by the increased pressure in the lumen, would seem to be directly unfavorable to the carrying out of metabolic activities.

Various drugs have been employed for the purpose of increasing the arterial blood-pressure in order to observe the effect of increased pressure upon the vascular walls. But such results are inconclusive, owing to the possible and probable action of drugs directly upon the tissue elements.

Klotz has obtained experimental evidence that mechanical increasing of the pressure in arteries within moderate limits, without operative procedures on the vessels themselves, may lead to vascular hypertrophy. The earliest and most marked hypertrophy was found to occur in the musculo-elastic layer of the intima.²⁴

As to the vasa vasorum, in an engrafted vascular segment, since the connections are severed, the result of compression of the capillaries is problematical. In the case of the lymphatics, still less may be said. When the circulation is caused to become arterial and reversed in a vein, the conditions are perhaps vastly different, particularly as regards the vasa vasorum. I presume that the venous vasa vasorum open into the veins, but just where for any given vein I have not discovered. But supposing that when the circulation is reversed in an external or internal jugular vein that the venous vasa vasorum for the peripheral portion of the vein open peripherally to the line of anastomosis (a point on which I am by no means certain), then the condition in the nutritional vessels of the vein (vasa vasorum) would theoretically approximate hyperemia of the vein, as when an inferior thyroid vein is ligated, divided and the peripheral end anastomosed to the central end of the opposite common carotid artery. The histological findings in such a vein in certain respects bear a striking similarity to the findings in the case of the thyroid gland after such an operation as the one described, namely, a fibrosis consisting of densely packed fibers.²⁵ It would take too much space to enter into the theoretical explanations which have been offered elsewhere

in explanation of the changes observed in the tissues of thyroid lobes thus operated upon. But I may say that the same considerations probably hold, with but slight modifications, for veins. That is, the condition probably results in the production of partial asphyxiation under the influence of which the processes resulting in the structural changes described occur, the processes thus set up apparently being self-limiting.

Severance of nervous connections is a factor possibly contributing to the results, for it is well known that certain tissues undergo structural modifications after section of the nerves going to a part. This seems attributable not only to the loss of impulses through which certain functional mechanisms are thrown into activity or are governed, but also to the causing of nutritional disturbances, largely, perhaps, through alterations in the circulation.

No direct evidence has been obtained that nervous connections with an engrafted segment are formed. But special methods of investigating this subject have not been employed. It is, I think, reasonable to suppose that nerves very probably penetrate such tissues along with new blood-vessels. And as the latter may occur in abundance, from this standpoint it may be said that at least certain kinds of nerve fibers very probably grow into such engrafted vascular segments.

Under optimum conditions, as when an arterial segment is removed and immediately replaced, it would seem probable that a very complete reestablishment of nervous connections may occur. But in those cases where great degenerative and structural alterations take place, it is highly doubtful if very extensive nervous connections are formed, as in heterografts or grafts made with dead tissues. In these cases major contractile tissues—e. g., the muscularis—may be entirely absent; so, even though a very complete nervous mechanism develop, which is improbable, certain kinds of fibers would no doubt disappear through functional atrophic processes.

Other factors, such as the toxicity of the host's blood for the graft, as in heterotransplantations, cannot here be considered.

From such considerations I am of the opinion that, basically the structural alterations noted in engrafted vas-

cular tissues are the expression of the sum total of a considerable number of factors, all of which primarily act through affecting the nutrition of the tissue. Also, that the changes observed are, on the whole, of passive, rather than active origin. And that there is no evidence in any instance that a true functional hypertrophy occurs in such engrafted vascular segment.

The Effect of Some Vascular Anastomoses Upon the Circulation: The effect of vascular anastomoses may range from *nil* to converting a vein into an artery, and *vice versa*. After repair of a simple injury in a vessel wall, unless marked constriction is produced, but slight circulatory disturbance results. And the same is true after reunion of a divided vessel, either by direct end-to-end anastomosis, or by the interposition of a suitable segment of another vessel, even though the latter has lost its vitality. But if an artery and vein be divided, and the central end of each be anastomosed to the distal end of the other, great alterations in the circulation result.

After the central end of an artery is anastomosed to the peripheral end of a vein, the velocity of the blood in the arterial portion of the vessel is greater than normal. For the blood empties directly into the vein, and owing to the free anastomotic connections between veins the peripheral resistance is less than in an artery. Also the pressure is lowered. At first, the valves may retard the circulation, but these soon give way. In the venous portion of the vessel the direction of the circulation is the reverse of normal, the pressure higher, and the blood arterial. The pressure in the capillary area normally drained by the vein is increased, for the vein ceases to transport venous blood away from the capillaries, and conveys arterial blood toward them. Some of the blood sent back through the vein may reach unobstructed venous trunks through direct anastomotic connections. The greatest increase in capillary pressure, due to the reversal of the direction of the circulation in the vein, probably occurs shortly after the operation. For when the central end of one common carotid artery is anastomosed with the peripheral end of the inferior thyroid vein on the opposite side of the neck, the effect upon the circulation in the gland is immediate, particu-

larly if the gland be markedly enlarged and the blood-vessels prominent. On occluding the vein preparatory to division and anastomosis with the artery, the gland may swell somewhat and become purplish—that is, present the appearance of passive anemia or engorgement with venous blood. But very quickly after the new circulation is established it greatly enlarges in size and the blood-vessels become more engorged, but very red or arterial in hue. The whole mass strongly pulsates, and very soon the tissues become edematous. Within a few days the swelling begins to subside, and usually in less than a fortnight the gland is no larger than at the time of the operation. After some months it may approach in size a normal thyroid lobe in an animal of similar species and size. If such a gland be examined histologically, it will be found to be densely fibrous and decreased in vascularity.²⁶

By anastomosing the peripheral end of an artery that has free anastomotic connections, as the common carotid artery, to the central end of a vein, the circulation in the artery is reversed and the pressure lowered. In the vein the blood becomes of arterial composition. The pressure may be raised, but the direction of flow remains normal. The effect upon the circulation in the tissues involved is the same, approximately, as in ligating the vessels.

If the principal artery and vein to a part be divided, and a double anastomosis made, consisting in the union of the central end of the artery to the peripheral end of the vein, and *vice versa*, and if the collateral circulation is relatively weak, a partial reversal of the circulation in the part results. This may be complete, as when an organ is extirpated and then replaced, and such arteriovenous anastomoses performed.

What has been said applies to vessels of the general circulation. In considering the effects of operations upon such vessels as the portal vein, all circulatory peculiarities are to be taken into account in analyzing the results.

Lateral anastomotic communications between arteries and veins would in general lead to: (1), an increase in the velocity of the blood in the central portion of the artery; (2), decreased pressure and circulation in the distal portion of the artery; (3), increase in the venous pressure, with admixture of arterial blood and acceleration of the circulation

through the central portion of the vessel; (4), slowing of the circulation through the distal portion of the vein; and (5), decrease in the capillary circulation of the affected part, due to decrease in arterial pressure and increase in venous pressure. In short, the tissues are rendered anemic, both by decrease in arterial supply and increase in venous pressure.

Clinical Applications: Attempts to increase the blood flow to a gangrenous foot or leg have been reported. But from the character of the operations alone, leaving the results themselves (which, on the whole, have been bad) out of account, such operations have been unsatisfactory. A lateral anastomosis between the femoral artery and vein or division of the femoral artery and vein and anastomosis of the central end of the former to the peripheral end of the latter (with, perhaps, anastomosis of the remaining two ends with the view of providing a channel for the return of the arterial blood carried by the vein), are examples of such operations.

Such good results as have or may be reported following especially the first two operations would more logically be accounted for as due to a too pessimistic prognosis. For no one has presented any direct evidence that under the conditions an accelerated capillary circulation takes place, and the reasons against it must be given first place unless some direct evidence is produced. In case of the double anastomosis of the divided artery and vein, there is evidence that at least a certain amount of blood is driven from the capillaries into the artery. For example, a flow of venous-hued blood returning through the peripheral end of the artery toward the heart has been observed in a dog some time after such a double anastomosis was made.²⁷ But this is not conclusive evidence that arterial blood conveyed peripherally by the vein was driven through the capillaries and into the artery. A consideration of the anatomy of the venous system of the leg is illustrative of this point (Fig. 4).

It is observed that the vascular trunks frequently and freely intercommunicate by means of anastomotic connections. The more internally situated veins perhaps are not so richly supplied with such channels, but it is extremely doubtful if any of the major trunks are devoid of them. Indeed, only in the case of so-called terminal vessels can one be cer-

tain that such connections are absent, and even in such instances collateral channels develop with such rapidity following interference to their main channels, that it seems very probable that such channels may develop from vascular connections normally so small that they are overlooked. So the forcing of arterial blood into the distal end of a vein such as the femoral, very probably leads to changes in the circulation not only within its own direct branches, but, through the anastomotic channels, affects the circulation in other veins as well. In general, this, presumably, would lead to increased venous pressure, so that the blood of the capillaries most largely supplied normally by the operated artery would find its way into the artery rather than into the veins. Further, it is to be remembered that collateral arteries are still conveying blood to the limb, and it may be this blood that is ob-

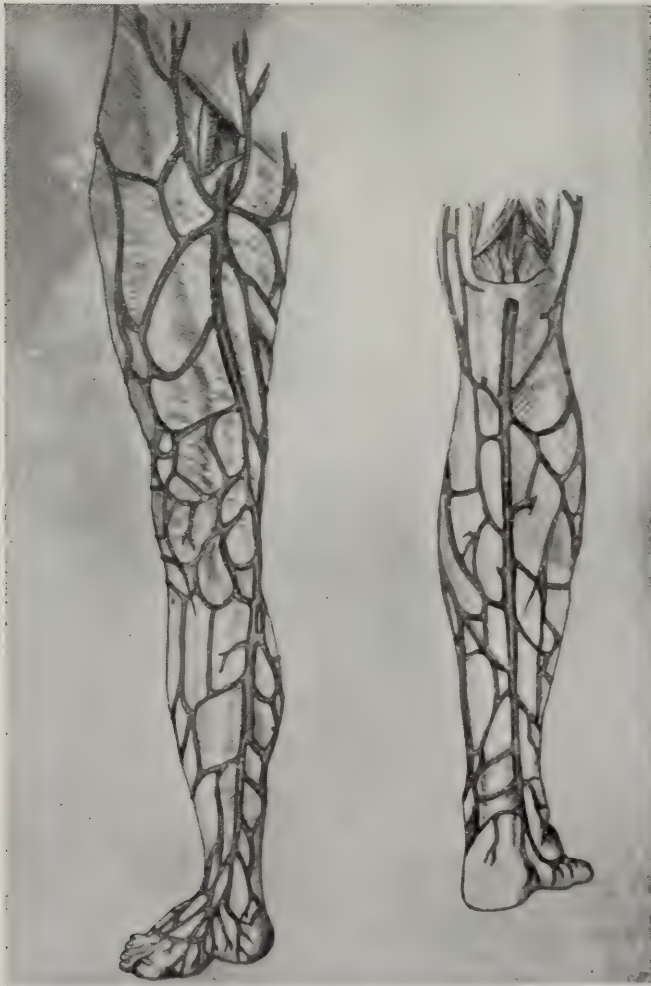


Fig. 4. Venous anastomoses of the leg. (From Gray's Anatomy, 1897, p. 671, Figs. 391-2.)

served returning through the peripheral end of the operated artery. Such factors as the collateral arterial connections with the operated artery distal to the line of anastomosis with the vein, are also to be taken into account.

Results: Simple vascular repair has been accomplished without difficulty. But turning to anastomosis of divided blood-vessels, the evidence is not nearly so complete or satisfactory. For example, in 1900, two cases operated in Garré's clinic were reported.²⁸ One of these consisted in the suture of one of the common carotid arteries on the removal of a tumor. The patient recovered, but died a few months later. No postmortem examination was made. In the other case the brachial artery was sutured, and, though diminished, a pulsation of the radial and ulnar arteries persisted. The conclusion was drawn that both operations were successful. Other similar cases might be cited, but the two given are fairly representative, and will therefore serve, together with what follows, to illustrate the fallacy of drawing definite conclusions from such cases. But first it must be stated that it is assumed that in such instances the term "success" is employed to mean that the lumen of the vessel remained patent at the point of operation—at least, until primary healing of the vessel was complete.

In analyzing the observations presented in the report of the two cases, it is observed that in the case of the operation on the common carotid artery that no symptoms attributable to occlusion were seen. Now it is known that in man ligation of one of these arteries is not necessarily followed by symptoms of circulatory deficiency. So it must be concluded that the observation reported proves nothing so far as preservation of patency of the arterial lumen is concerned.

The second case, which involved suture of the brachial artery, likewise proves nothing in this respect. It is true that the continuation of the radial and ulnar pulse strongly indicates at least a temporary preservation of the arterial lumen, for if such a vessel be ligated, pulsations in the distal trunks ordinarily for a time disappear or become impalpable.

This continues until such time as the circulation is re-established directly through the vessel or by enlargement and development of collateral branches. This can take place with

great rapidity after ligation of a large trunk, as the femoral. The return of pulsation in the large vessels below can occur, it has been said, as early as twenty-four hours in the young, and proportionately later in older persons. The veins play an important role in the reestablishment of such collateral circulation, so that when the vein and artery are both occluded, the danger of death to the extremity is much greater than when only one of them is occluded.

Guthrie (1830) states that he had many opportunities of seeing the vein and artery of a limb divided by a wound or included in a ligature, but rarely had he seen a case in which mortification did not ensue; and he was disposed to consider it, as a general rule, liable to an occasional exception, that where the femoral artery and vein are divided or included in a ligature, the limb will be lost by gangrene. In this connection an experiment by Watts is interesting:²⁹

Experiment 45. Ligation of right femoral artery and vein.

April 9, 1906.—Small brown terrier. Right femoral artery and vein exposed in Scarpa's triangle and both ligated. Small branches of both vessels also tied. Wound closed with silk. No dressing.

April 20, 1906.—Wound healed *per primam*. Dog lively. No evidence of gangrene of leg.

Again, Braun's case, where he claims to have removed a segment of the aorta of a child and then successfully united the ends with preservation of function, is still more doubtful.³⁰

Cooper in several instances ligated the abdominal aorta in dogs and found that the blood was readily carried by anastomosing vessels to the posterior extremities. He found that the lumbar arteries became enlarged and considered them the chief anastomotic channels. He also ligated the abdominal aorta in a man who was suffering from rupture of an aneurism of one iliac artery, and observed evidence of circulation in the limbs. That is, sensibility was incompletely lost and the limb on the side unaffected by the aneurism maintained a fairly good temperature for forty hours.³¹

Halsted completely occluded the abdominal aorta of a dog and noted temporary weakness of the hind legs; but one month after the operation he described the animal as being

“perfectly well and active.” Two months after the operation the femoral pulse was detected for the first time. Eleven days later the pulse was countable, but still very small.³² Such observations emphasize the importance of not attaching too much significance to the absence or presence of the pulse.

The report of successful suture of such vessels cannot be accepted on evidence other than that furnished by direct inspection of the vessel at the point of operation.

In 1902, according to Schmitz, twenty-one successful arterial sutures in man had been reported.³³ In 1910, Stich stated that such successful operations numbered more than a hundred.³⁴

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Some Notes on the Diagnosis and Treatment of Eclampsia.

By A. J. SKEEL, M. D., Cleveland.

As a recent writer on eclampsia has well said, any essay on this subject can be little more than an expression of the author's own articles of faith.

There has been no great recent advance in our knowledge of the subject. With the exception of the medical geniuses, that clinician is of most value to his fellow man, who is able to impart to his coworkers not columns of statistics, for these are being accumulated in vast quantities throughout the medical world, but who tells as accurately as possible the little sidelights derived either from reading or observation, which he himself has found useful along the paths not yet lighted by the noonday sun of science.

This is not an attempt to review *in toto* the diagnosis of eclampsia nor to discuss all the various methods of treating it, but merely to bring up for discussion some clinical impressions.

We have been so puzzled by the variable behavior of eclamptics and threatened eclamptics that we have fallen into various rather loose modes of speech, and perhaps of thought with regard to it. We have heard so much of the case which occurred like a "thunderbolt out of a clear sky" that we excuse ourselves for not having recognized the premonitory symptoms. As a matter of fact the case of eclampsia probably does not occur, which gives no preliminary sign of its onset to a careful observer seeking for these signs. It is only that our usual methods of supervision of our patients are not always adequate.

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Examinations once every week or once every two weeks may be all that are practically feasible in the routine handling of obstetric patients; but because a woman was examined a week ago without giving evidences of eclamptic toxemia is no proof that she did not have these evidences in abundance for two or three days before the actual convulsive seizures.

Of all the clinical warnings which we get of threatened eclampsia, albuminuria still remains the most uniformly present before the onset of convulsions. The reverse of this statement, viz., that every pregnant woman showing a little albumin in her urine is in danger of convulsions is certainly not true, but the finding of albumin should make us at once increase the frequency of observations of any pregnant patient. The care of the diet, bowels, kidney, skin, amount of exercise, etc., should all be taken most actively in hand.

For routine testing for the presence of albumin a saturated solution of sulphosalicylic acid supported by Heller's test is satisfactory. I do not dispute the existence of such cases, but I have never yet seen an antepartum eclamptic case which did not show the presence of albumin before the onset of convulsions, provided the test was carefully made within twenty-four hours of the appearance of the spasm. Certainly 95 per cent of them do so. No other sign or symptom is so uniformly present. As a matter of fact it is rare anywhere in medicine to have a symptom present in a larger per cent of cases.

Next in order of frequency and reliability is the rise in blood-pressure; and perhaps next most common is the occurrence of edema. Unfortunately, however, from the diagnostic standpoint, the albuminuria, rise in blood-pressure and edema, seem all to be associated with the renal deficiency, and consequently often to be grouped together. This brings us to a brief discussion of the so-called hepatic and nephritic types of eclampsia. It is well known that degenerative processes occur in both liver and kidneys in this toxemia. Apparently in the great bulk of cases liver and kidneys deteriorate together and progressively.

The so-called nephritic types, in which marked albuminuria, high blood-pressure, and extensive edema occur, are

frequent, are easy of early diagnosis, offer a more favorable prognosis, and possibly represent those patients in whom the renal deficiency is relatively great and the liver damage relatively small.

In the so-called hepatic type, however, this entire renal group of symptoms, if one may so designate them, is inconspicuous, albuminuria slight, blood-pressure rise small, and edema scarcely demonstrable. They are much more rare. These are the cases in which we are lulled to a false sense of security by the apparent mildness of the condition, until, after a few days of slight symptoms, our patient develops sharp headache, dizziness and convulsions of the severest kind, all within a few hours. These are the cases, too, which most frequently go on to a fatal termination in spite of treatment. Possibly in these cases the liver degeneration is relatively great, the kidney deficiency relatively small, and the true condition therefore difficult of discovery until far advanced. Perhaps those workers are correct who insist that these should be classified into acute and chronic eclampsias, and that the overwhelming of the patient with toxins is responsible for the low blood-pressure in these cases.

Whatever the explanation, the clinical value of grouping together high albumin per cent, marked rise in blood-pressure, and extensive edema is evident. When one of these is marked they are likely all to be marked. When one of these is slight (and this is the important point) they are all likely to be slight.

Given a patient with known normal kidneys before pregnancy, I attach more importance to the persistence of albumin and its stubbornness to treatment than to its exact quantity. 0.25 per cent persisting is more ominous than 0.5 per cent yielding to treatment. Recurrence of albuminuria, after it has once been cleared up, is to be looked upon with suspicion. Another little prognostic pitfall which the eclamptic patient digs for the unwary is this: The patient presents herself at the office, the urine is found loaded with albumin; the patient is apprised of the fact and of its significance, and sent home or to the hospital for treatment. Under the sudden nervous excitement her kidneys secrete a large quantity of water, thus diluting the albumin, and the next test by ring or boiling shows albumin much diminished. Of course, the apparent

improvement has not occurred. In the routine clinical work with urine then, the twenty-four hour quantity, specific gravity, quantity of albumin and persistence of albumin, in spite of treatment, are of importance.

Taking the blood pressure and examining for edema should be linked with the urinary results in our minds. The occurrence of headache, nausea, disturbances of vision, vomiting, dizziness, epigastric pains, etc., should be carefully inquired after.

Albuminuric retinitis, edema of the optic disc and an increased leucocyte count may be present, and if so are of value, but their absence is of little importance. All of this can be done with only the most simple laboratory outfit and is consequently available to every practitioner.

Having our patient's condition diagnosed, how shall we treat her? Taking for granted the usual rest in bed, liquid diet, large quantities of water, vigorous cathartics, sweating by hot packs, etc., and avoiding discussion of Fischer's treatment as leading too far afield for present purposes, we will discuss some salient points.

The ever arising question is, shall we induce labor, and if so, when? Naturally before the period of viability we would make every effort to prolong the pregnancy by medical treatment of the condition. Fortunately, however, most of our cases come to a crisis during the last four to six weeks of pregnancy (91 per cent during the last eight weeks, according to Glockner and Lichtenstein), when the question of viability need not be seriously considered. My personal experience here is that what is best for the mother is best for the child. The high mortality of children born of eclamptic mothers is well known. The participation on the part of the child in the degenerations shown by the mother is also well demonstrated. On the whole it seems that when the mother has shown sufficient symptoms of toxemia to warrant emptying the uterus in her interest, that the best interests of the child are served by the same procedure. This simplifies the question to the one of the mother only. From this standpoint the only guide we have that has seemed to me at all worth while is this: So long as the entire condition continues to improve under medical treatment just that long we are

justified in a policy of noninterference. Whenever under reasonably vigorous dieting and elimination the improvement fails to continue, the question of emptying the uterus must be seriously considered.

The later in pregnancy the question of interference arises the less need be the indications before inducing labor. So that close to term one can start labor on relatively slight indications. Allow me to call your attention to the value of vigorous elimination for a short time before inducing labor. Our patient is at an unknown point on a line leading toward convulsions:



We may speak of her as having to accumulate so many convulsion units in her body before the catastrophe. This accumulation of convulsion units is certainly increased by labor. Starting labor on a patient who is at C on this line might mean convulsions. Vigorous elimination for a few hours before labor may place this patient back at B or A, when the added strain of labor will not mean convulsions. Inasmuch as we do not know the position of our patient along this line, it is well, whenever circumstances permit, to eliminate vigorously, i. e., move her as far from the convulsion line as possible before beginning labor.

This extra strain of labor bringing its extra load of convulsion units and carrying her across the convulsion line is undoubtedly responsible for many of the intrapartum eclampsias, and probably for most of the postpartum cases. If this be correct then the relatively high per cent of intra and postpartum eclampsias is no argument against the induction of labor for threatened eclampsia, but is on the contrary an urgent appeal against letting the patient go too far in her toxemia before undertaking interference. In other words, do not let her get too close to the convulsion line.

Following the same argument to its logical conclusion, given a patient in convulsions that method of delivery should be chosen which will empty the uterus most expeditiously. I believe that the effect of an average labor on such a patient is most pernicious. It means hours of hard work. If there is any one thing we have learned in the treatment of this

condition it is the value of rest and the injurious effect of bodily activity. When we allow our patient to deliver in the normal way we are putting her to a test of physical endurance. If the cervix is already opened, forceps or version will deliver in a relatively short time, and avoid hours of physical labor. If the cervix is closed and unprepared for labor, vaginal or abdominal section, as the case may be, offers a ready means of quickly emptying the uterus. The statistics of high mortality following abdominal Cesarean section for eclampsia when analyzed show that this procedure has been used as a so-called last resort measure. There is no intrinsic reason why abdominal section should not compete with vaginal section as a method of emptying the uterus in these cases.

With regard to the anesthetic, some of the patients are in deep coma and need little or none. Others are in partial coma interrupted by convulsions. These patients should have morphin and will need little anesthetic. In the light of our present knowledge of the effect of chloroform on the liver, it seems that this is the least desirable. Ether is probably preferable to it, but nitrous oxid would seem to be the anesthetic of choice in this condition. Chloroform is never given for any purpose to an eclamptic patient in my care.

I am well aware in urging the evacuation of the uterus in these cases that some authorities have very largely returned to the purely medical treatment, but I believe that the strain of labor is the point of danger, not the empty uterus. The same plan of treatment recommended for preeclamptic toxemia, viz., active elimination before subjecting the patient to the strain of labor or of operative procedures, holds good for the patient actually in convulsions. Something about the emptying of the uterus, either the strain of labor, or, as Dienst suggests, the releasing of large numbers of polymorphonuclear leucocytes from the pelvic veins increases temporarily the toxemia of the patient. Just as the curative measure, curettage, temporarily increases the toxemia of a woman with retained secundines, so the curative measure in eclampsia, i. e., uterine evacuation, makes a temporary increase in the convulsion unit content of our patient, or, if you choose, increases her toxemia. Anyone may convince him-

self of the deleterious effect of prolonged labor by watching the increase in the quantity of albumin in a case of threatened eclampsia, after twelve to twenty-four hours of labor. This may be partially offset by vigorous preliminary elimination, and in some cases by bleeding immediately postpartum.

Lichtenstein has recently made a plea for noninterference in the milder eclampsias and cites numerous cases of recovery during pregnancy. Of the severe attacks he says: "The organism must here be given every chance," and advises interference if bleeding fails of results. Surely the organism should be given every chance in every case of eclampsia, and surely if evacuation of the uterus is life-saving in severe cases it will not be less effective in the milder ones.

The Medical Treatment.—Any unprejudiced observer who has watched the treatment of a few eclamptics must have wondered how many well women would survive some of the methods commonly in vogue. A severe eclamptic convulsion is truly a terrific spectacle and seems to leave doctor and nurse inspired with only one thought, "elimination at any cost." I have seen the hot packs continued without intermission in a patient who did not perspire until it was apparent that perspiration or heat stroke were the only possible alternatives. If the patient perspires freely in the hot pack its object is accomplished. If she does not perspire this very fact makes its continuous use doubly dangerous. The hot pack should last not longer than thirty minutes, should not be repeated oftener than once in three hours, and its use should always be controlled by its effect on pulse and temperature. The effect of the individual pack seems to be enhanced by the repetition, exactly as with the cold bath in typhoid. In some patients who do not bear the complete hot pack well a large lumbar pack seems to have a favorable effect.

Personally I have never departed from the use of normal saline solution in this condition to stimulate renal secretion and favor perspiration. The only exception is in those cases with immense edema, whose tissues are already waterlogged. It seems unreasonable to give such a patient fluid until by some means her tissues have been relieved of some of this

water. Many of these have seemed to be benefited by bleeding with later exhibition of water or normal saline.

Catharsis is notoriously hard to produce in eclamptics, and again here the correct principle is persistence in seeking bowel movement rather than over-strenuous dosing. If the patient cannot swallow, introduce the stomach tube, irrigate the stomach, and introduce the desired cathartics, salts, elaterium, etc. Continuous irrigation of the bowel by a double tube is of value when the patient's condition permits. But the crux of the whole situation is often the element of time, to secure time for our efforts at elimination to become effective. In other words, to prevent the convulsions from killing the patient while waiting for elimination to occur. For this purpose I depend upon morphin; not as Stroganoff uses it, in massive doses to prevent convulsions entirely, but in moderate doses, 1-6, 1-4 or 1-3 grain by hypodermic, repeated only as necessitated by the recurrence of convulsions. The object being merely to so moderate their severity and frequency as to ensure the patient's safety while awaiting the results of our eliminative measures. Used in this way one secures the essential factor, time, with the least quantity of morphin, and consequently with the minimum of its admittedly undesirable effect on the bowel action. Naturally, when the tendency of the patient, as sometimes occurs, is to remain in deep coma, with convulsions only at rare intervals, morphin is entirely contraindicated.

Specific efforts toward reducing the blood-pressure, as by nitrites, are probably unwise, unless this is so high as to constitute of itself a danger to the patient. In those rare cases in which the blood-pressure runs from 225 to 250 millimeters or over the danger from this source is a very real one; but even here it is questionable whether any diversion from the main issue, the securing of elimination, is desirable. In eclampsia the blood-pressure will surely diminish with the reduction of the toxemia, and it is at least possible that the high tension favors renal elimination.

Just one word as to the duty of the physician to an eclamptic patient. She requires most assiduous attention. Her condition is changing almost from hour to hour. It is therefore entirely impossible to secure the best results in

these cases unless one is willing to give unstintedly of his time. It is utterly impossible to give directions to an attendant, nurse, house doctor, etc., for twenty-four, or even twelve, hours in advance, with any assurance that they will not need changing in the meantime. Frequent personal observation of the patient is an absolute requirement for successful treatment. Two or three days usually decide the fate of the patient, and the most active attention is necessary during this time.

I have purposely avoided the time-worn discussion with regard to veratrum viride, chloral hydrate, etc. With thyroid extract, Fischer's treatment, and sugar solution instead of normal saline I have had no experience.

Summary:

1. Albuminuria is the most uniformly present symptom of preeclamptic toxemia.

2. Its persistence, in spite of treatment, is more significant than its quantity.

3. Albuminuria, rise in blood-pressure, and edema are unfortunately "grouped" in their severity.

4. The child's interest in induced labor is identical with the mother's.

5. Eliminate vigorously before starting labor.

6. Whenever under reasonably vigorous treatment the patient does not improve, induce labor.

7. In the presence of actual convulsions: (a) If the cervix is open apply forceps or do version; (b) if the cervix is closed do vaginal or abdominal Cesarean section; (c) avoid the strain of labor.

8. Gas is the anesthetic of choice for operative procedure, next ether; never chloroform.

9. Avoid undue forcing of hot packs for fear of heat stroke.

10. Secure time for production of elimination by controlling convulsions with morphin.

11. Ordinarily the high blood-pressure needs no specific attention.

12. The successful treatment of eclampsia requires much personal attention by the physician.

A Report of One Hundred Cases of General Paralysis of the Insane, with Serological and Cytological Findings.

By K. S. WEST, M. D., Assistant Superintendent, and H. B. CORLETT, M. D., Assistant Physician, State Hospital for the Insane, Cleveland.

The recognition of general paralysis of the insane as a distinct disease is credited to French observers of more than a century ago, but it remained for the clinician of the past few decades to discover its prevalence, recognize its diversity of forms and assign the essential cause.

It is stated that Haslam, an apothecary at Bethlehem Hospital, recognized the disease in 1798, describing it as a form of paralytic insanity which was invariably fatal; that in 1816, Esquirol gave it the name of General Paralysis of the Insane, and in 1857 Esmarch and Jessen declared themselves as believing that syphilis was the cause. Charcot rejected this opinion and, in 1886, Dejerine insisted that syphilis was rarely found in the history of paretics, that it had no influence on its course and that its presence in paresis was nothing more than a coincidence.

During the past fifteen years most important advances have been made relative to syphilis and its connection with diseases of the nervous system. The remote effects of almost forgotten infections have been demonstrated and have compelled the well nigh unanimous belief that syphilis is the essential and perhaps sufficient cause of paresis.

We know that in a large per cent of paretics a history of syphilis is given; that the geographical distribution of paresis coincides with that of syphilis; that in countries where syphilis is prevalent, notably China, Japan, and Abyssinia, in which formerly paresis was thought to be rare, the error was in the failure to recognize the disease, which is now found to be common; that men, who are more exposed to syphilis than women, are more frequently affected and that women who have paresis are as a rule prostitutes; that there is a juvenile form of paresis due to hereditary syphilis and that it occurs with equal frequency in males and females before the conditions frequently given as the cause or as exciting influences, could have arisen; and that the serological and cytological changes usually found

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in known syphilitics are identical with those found in paresis and tabes.

We have also the convincing experiment reported by Krafft-Ebing, of the inoculation with syphilitic virus from typical hard chancre of nine paretics; and after keeping them under observation for 180 days, he was able to determine that no sign of primary or secondary syphilis appeared, and also that the declaration of a denial of syphilis by each of these patients was incorrect. The inference was that they were immune because of an antecedent syphilis. However, with reference to this opinion, Adolph Meyer, stating that he has never seen any primary or secondary lesions in a parietic, is impressed by the scantiness of evidence of the primary and secondary reaction at the initial infection in a large number of cases.

The discovery of *Spirochaeta pallida* and the practical application of the Wassermann reaction have stimulated increased interest in the study of syphilis and its sequellae, establishing the relation between paresis and tabes, the latter having long since been conceded to be due to syphilis. But there still remain conditions difficult to explain; for instance, the prevalence of syphilis and the comparative rarity of paresis, since it is considered that not more than 2 or 3 per cent of syphilitics ever develop paresis. Therefore there must be some factor present in the 2 or 3 per cent absent in 97 or 98 per cent to account for the disease. We can do no better than quote Mott as follows: "Is it because the virus is so modified as to have a specially selective action on the nervous system of the few so affected, or may it be that the nervous system of the few respond to the virus in a hypersensitive manner? Instances are cited which justify both hypotheses and it may be that each is effective depending upon some of the various coefficients ordinarily considered as contributory."

Supporting the theory that the virus has a special neurotoxic action, Babinski cites the case of two students being infected by the same woman on the same day, both dying with paresis fifteen years later, but adds that these students were related. Mott cites two men unrelated infected by the same woman, the same day, both dying of paresis ten years later. Marie reports two similar cases both developing tabes ten years later, and Erb four men infected by the same woman later developing paresis. Brasius relates the instance of seven glass blowers suffering with

chancre of the lip and out of five heard from ten years later four had either tabes or paresis.

The cases considered in this report include those present in the Cleveland State Hospital in August, 1910, and those admitted since that date, and the series is therefore considered representative of the disease in its most frequent forms and at the same time exhibits many of the numerous and diversified conditions encountered in this malady. Whilst it does not show some of the more rare and atypical conditions reported from larger and more prolonged observations it does show that in one hundred consecutive admissions there were many cases unrecognized by competent physicians when unaided by the laboratory findings. It shows that there are cases that give a history entirely misleading, or in which most important facts are withheld; that the mental symptoms may show the most extreme variations or be entirely absent while the physical signs are more constant but vary in degree and in some cases are practically negative. Therefore, whilst there are many cases which are so thoroughly typical as to admit of an immediate and correct diagnosis, there are others, and these are the important ones, which require a most rigid study, and it is in such cases that no one is capable of making a positive diagnosis unless the blood gives the reaction of the presence of an antibody and the cerebrospinal fluid bears evidence of neural decay.

On taking up the statistics of the one hundred cases herein studied it is to be understood that men only have been considered; but during this same period of observation there were present and received nine women, showing the ratio of one to eleven, which is about the rate usually found. Also the facts herein presented are those necessarily considered in diagnosis.

Age: Their ages range from nineteen to sixty-five with an average of forty-two and three-fourths years. The youngest case was of the juvenile type, and the only one so considered. A definite history of inherited syphilis was obtained; the case presented typical physical symptoms, with positive laboratory findings, and passed into an early and profound dementia, running a complete course in about six years. The average age found is about parallel with similar observations and is in the main void of interest, only showing that if, from the average age, the average latent period is deducted we have the age of

greatest indiscretion and liability to infection. The following table shows the variation in the number affected in different decades:

Between 20 and 30 years of age.....	3
“ 30 “ 40 “ “ “	40
“ 40 “ 50 “ “ “	43
“ 50 “ 60 “ “ “	10
Over 60 years of age	4
Between 35 and 45 years, inclusive.....	53

Nativity: 58 per cent were born in the United States, while the remaining 42 per cent came from fourteen different countries of Europe. Austria-Hungary contributed ten, Germany seven, England five, Canada and Bohemia each four, Sweden three, Ireland and Poland each two, Finland, Scotland, Wales, Italy and Russia each one.

Civil condition: Married and divorced eighty-five, single fifteen; the married class predominating by about the same rate as prevails in men at forty years of age.

Occupation: The number of occupations represented by these one hundred men is forty-five, thus showing a large diversity in the social scale. Thirty-two were common and unskilled laborers. Those engaged in occupations frequently referred to as contributing causes such as those entailing stress, fifteen; those in which intoxications are probable, such as painters, plumbers, and tinnerns, seven; those engaged in constant travel or transportation, six. The remaining forty represent a large variety of occupations which have never been considered influential or in any way contributory to the development of paresis. Considered from the standpoint of occupation and conditions generally determining the social standard, we find twenty from the upper classes, forty-five middle class, and thirty-five lower class.

Habits: Intemperance has always been given a large place in the consideration of cause and is known to produce a condition simulating paresis, but it is nonprogressive and usually terminates in recovery after running a variable course. We found thirty-five in which a history of more or less prolonged and excessive alcoholism was given, while sixty-five were temperate in the sense usually applied. There are many instances in which intemperance is known to have developed during the incipency of paresis as well as other forms of insanity, and is there-

fore more the effect than cause, though frequently otherwise considered. Mott states that in the rural districts of Ireland, where alcoholism, insanity and imbecility are extremely common, general paralysis is rarely seen, and therefore hereditary taint and alcoholism, without syphilis, which is rare in this district, cannot produce general paralysis.

Heredity: A history of insanity in the family was found in only 10 per cent of the cases, which is lower than frequently given, as high as 30 per cent being reported. It is generally believed that hereditary influences are less frequent than in other forms of insanity, but at the same time it does seem that a neuro-pathic individual having been infected with syphilis must be more liable to degenerative conditions than the more stable type. It has been suggested that natural endowment, in conjunction with the environment as an immediate factor, determines as to the part of the cerebrospinal axis in which the symptoms shall predominate, i. e., as to tabes or paresis. Savage puts it that no precise description of the ruins of a house can be anticipated save that the weakest part will go first, the paths of destruction varying with circumstances.

Traumatism, i. e., head injury, was found in six cases, all of which were of more or less severity; but in only one did the conditions indicate decompression or any other operative measures. In this case the symptoms developed gradually after injury; the case ran a most typical course, having the usual physical and mental symptoms, convulsions, etc., and died three and a half years after the onset. No history of lues was obtained, but risk was admitted. The blood gave a negative Wassermann reaction on five consecutive examinations, and the spinal fluid was also negative by the Wassermann test but positive by the Noguchi globulin test. There was a lymphocytosis showing forty-eight cells per C mm. Another interesting case is that of a man, aged thirty-five, who contracted syphilis at seventeen, and was thrown from a moving train in 1897, rendering him unconscious for a period of ninety-two hours. He developed delusions of suspicion and persecution soon after, becoming more intense with time, and finally shot a fellow workman for whistling a Southern air, thinking he was referring to him, since his wife came from the South. This patient has been under hospital observation about eight years and his course has been slowly pro-

gressive. He has the usual clinical findings with a positive Wassermann reaction on both blood and fluid and a cell count of sixteen per C mm.

A history of syphilis was positively established in fifty-six cases; it was questionable in twenty-two, and no history was obtainable in twenty-two; lues was excluded in none. In thirty-six cases, a definite time of infection was established, which varied from five to twenty-six years prior to the onset of paresis, making an average of sixteen years. The difficulties in getting a history of syphilis are well known; frequently there is ignorance of having been affected, and again there is willful denial of the fact. Occasionally the admission of gonorrhea with slight discharge is found to have been intraurethral chancre. Mott observes that neither age, sex, nor social position necessarily excludes syphilis and cites Fournier as unable to obtain a history in 50 per cent of his female syphilitics; that Crocker was unable to prove a history of syphilis in 20 per cent of his cases with skin lesions, and that Hirschel in sixty-three cases of syphilis of the late form found a definite history in only 54 per cent.

Convulsions, apoplectiform and congestive seizures with confusion, rapidly developing and extreme elevation in temperature, are paroxysmal phenomena characteristic of the disease, but occasionally one may run a complete course with none of the above disturbances. They are most probably due in many instances to autointoxication of intestinal origin. Forty-one of the cases herein considered are dead; of these, thirty-one had convulsions sometime during their course, and twenty-six of the thirty-one died in status or exhaustion following seizures of some of the above mentioned types. Of the fifty-nine still living, twenty-one have already had convulsions and it is safe to assume that 85 per cent will, sometime during their course, be visited by one or more of the above mentioned complications.

Remission is a period of quiescence, or a subsidence of the mental phenomena, but it does not noticeably affect the physical condition so far as pertains to the characteristic symptoms, other than improvement in general health. These remissions are variable as to degree and duration; in many cases they may be so pronounced that the patients are able to return home and resume work, the friends believing that they had recovered in spite of the unfavorable prognosis given. In one of our cases the remission

extended over a period of two years; he resumed his former practice of law in a limited way, shortly after which the disease again became active and he was returned to the hospital. It is interesting to note that he again had a remission, but less complete than the first and while being visited by relatives, evaded them, attempted to board a running car, and was killed. No definite cause or explanation for remissions is given, but it is most probable that they are due to a subsidence of the toxic or autotoxic conditions which are so pronounced in the period of excitement. It has been observed that the more highly excited types at the onset are most frequently followed by remissions; and it is most probable that the change of diet and general mode of living, as on confinement to an institution, are largely responsible for this temporary improvement. The latter would not appear to be due to any serum or antisiphilic treatment as is sometimes alleged, since such remissions are equally as frequent and pronounced without such treatments as when these are administered. About 25 per cent of our cases had remissions in which the improvement was pronounced, and several more to a limited extent; but the majority of cases have gradually deteriorated, going on to complete dementia.

The pupillary phenomenon known as the Argyll-Robertson pupil is perhaps one of the earliest and most constant symptoms; there are also irregularities and inequalities of the pupils which are equally significant, especially if the direct and consensual reflex is but slightly altered. Mott insists that when irregularity of the pupils is present, unless known to be congenital or due to injury, we must consider a disease of the nervous system most probably due to syphilis. In 60 per cent of the cases the pupils were of the Argyll-Robertson type, 37 per cent reacted feebly, and in 4 per cent they reacted normally. In 25 per cent there was a noticeable irregularity and an equal number showed inequality of the pupils, but these two phenomena are not necessarily associated. These pupillary changes are not always constant, variations being noted from time to time.

Speech defect is one of the most characteristic of the earlier symptoms, frequently being detected only by most careful attention. Such test words as are frequently employed may fail to disclose this slight disarthria when close attention to their usual conversation will. This difficulty increases as the disease pro-

gresses, going on to anarthria, a condition in which inarticulate sounds only are uttered. We found a speech defect in varying degrees in 90 per cent of our cases on admission, and noted an altered facial expression and tremor of the facial muscles present in such cases.

The patellar reflex is another phenomena always deserving consideration. We found it exaggerated in 65 per cent, normal and slightly reduced in 15 per cent, and absent in 20 per cent. This reflex disturbance is not always constant, but may vary from time to time, but most frequently the lost reflex succeeds exaggeration in such cases. Tanzi suggests that this alteration is not due to the morbid process being transferred to a different site, but that its action, by becoming more intense, may produce the difference.

We have made no attempt to classify, in consideration of physical variations, with reference to tabetic symptoms, believing, as expressed by Fournier, Mott and others, that tabes and paresis are merely different aspects of the same polymorphic disease with essentially the same pathological identity, Mott's belief in this identity being confirmed by postmortem results with microscopic investigation of sixty cases of tabes dorsalis and sixty cases of taboparalysis. We consider that both are tabetic and wasting diseases of the sensory protoneurons in one case and the cortical neurons in the other; that their essential causative factor is the same, the average period between infection and the onset of disease correspond; and that both are progressive in character and unyielding to antisyphilitic treatment.

The question of delusions in paresis has always been of extreme interest and they were primarily believed to be universally of an exalted and grandiose type. The earliest historical record of this disease emphasizes this feature as the dominant one; and it is recorded that, long before Haslam recognized this distinct disease, it attracted the attention of Hogarth, an English artist, who in two portraits shows his observation of it; one instance is that of the self satisfaction and elation of an individual tracing a map and feeling that he had discovered longitude, while the other one, deeming himself worthy of a crown, sits in an attitude of great pomp, viewing his wooden scepter and wearing his paper crown.

Only within the last twenty years has it been recognized that there may be depressing as well as elated delusions, which in

either event are characterized by their extravagance and wild hyperbolism.

In this observation, on admission to the hospital, 59 per cent were exalted, in 31 per cent there was a simple dementia, and 10 per cent were depressed; these conditions continued more or less characteristic throughout their course. Kraepelin's statistics show only 40 per cent of an exalted type, and White, of Washington, believes that there is exaltation in less than 50 per cent. There is considerable speculation as to why this exaltation is apparently more prevalent in paresis than other forms of insanity, notwithstanding its frequency in alcoholic psychoses, paranoia, dementia praecox, senile psychoses, etc.

In many ways we may consider insanity an exaggeration of sanity and we know that individuals react differently to identical stimulation. We also know that there is a vast difference in the temperament and dispositions of individuals, with possibly the ambitious, sanguine and generous type predominating. Furthermore, we know that the highest and most specialized centers and acquirements are last developed, and that they are first lost in any deteriorating or toxic process; and that then the individual's characteristic temperament, desire, and ambitions are projected because of the impaired judgment and balance of control, which normally repressed them or held them within reasonable limitations. Therefore, it seems probable that whether a paretic is exalted or depressed depends upon fundamental characteristic features rather than upon any special pathological process.

In the study of our general paralytics the examination of the blood and fluid obtained by lumbar puncture has been carefully considered. The Wassermann serum reaction has been applied to the blood and cerebrospinal fluid. A cytological examination and an estimation of the globulin content have been made in each case. As an aid to diagnosis the laboratory findings have been of the greatest importance and each and all of the tests mentioned above we believe to be indispensable to the clinician in the study of any case of general paralysis. It is not our aim, however, in this report to set forth any new diagnostic method, but to make known our results with those already described by others. No attempt has been made to calculate the pressure of the fluid, as little significance is attached to this procedure.

Lumbar puncture was first described by Quinke in 1892, only, however, as a therapeutic measure for diseases causing in-

creased intracranial pressure. Some of the earliest cases subjected to this treatment were general paralytics. Probably the ease with which the fluid was extracted and the abundance of material to work upon led to the investigation which was soon to show definite changes in certain diseased conditions of the brain and spinal cord, and that some changes were constant and characteristic of certain pathological conditions.

Only a few paragraphs of our present physiologies are given to the consideration of this important secretion, and a word as to the appearance of normal fluid may not go wanting. Normal spinal fluid is clear, has a specific gravity of 1.004 to 1.008 and is alkaline in reaction. Pathological fluid may be clear, turbid, fibrinous, purulent, yellow or red. A small amount of blood will cause the fluid to be turbid. The specific gravity is usually increased in diseased conditions, with little or no change in alkalinity. A serum globulin is normally present, but there is no albumin. Diseased fluid usually contains this globulin in excess and other proteins may be present. Glucose is constantly found in the fluid and Fehling's solution is quickly reduced. In dementia praecox the sugar is said to be decreased, diabetes showing a marked increase.

Normal fluid is said to be devoid of cellular elements by Widal and Secard; according to Schonborn it may contain not more than three or four lymphocytes per cubic millimeter. It is probably the consensus of opinion that fluid containing more than five lymphocytes to the cubic millimeter is pathological. A lymphocytosis, or the presence of abnormal cells, is seen in some diseases of the brain and spinal cord and in other constitutional diseases. Mott reports that polynuclear leucocytosis generally means an invasion of the subarachnoid space by bacteria other than the bacillus of tuberculosis, but further states that polynuclear cells may be present with the lymphocytosis which accompanies tuberculous meningitis. In chronic inflammations of the leptomeninges we find a lymphocytosis. "It occurs almost invariably in syphilis of the central nervous system, general paralysis, tabes dorsalis, tuberculous meningitis, and sleeping sickness. It has been found in some constitutional diseases, lymphatic leucemia, herpes zoster, acute poliomyelitis, mumps, and in some cases of cerebral tumor."—(Mott.)

The spinal fluid in this series of cases has been carefully considered and we beg to submit the following data:

In every instance the fluid was clear and in only two cases did it contain the fibrin floculi observed occasionally with little or no pathological significance. In making the punctures, we occasionally had fluid contaminated with blood; this, however, was discarded and after a period of ten days the puncture was repeated. The cytological examination was made soon after the fluid was extracted, for it has been shown that the cells begin to disintegrate shortly after the fluid has been drawn off. In our quantitative estimation of the cell count the Fuchi-Rosenthal slide has been used. This slide has the advantage over the Türk's ruling in that its chamber has a capacity of 3.2 C mm. In general paralysis a definite lymphocytosis is seen throughout the course, probably more marked in the early stages of the disease; in fact, it is sometimes seen before physical or mental changes can be recognized.

The lowest count in this group was eight cells per C mm., the highest 153, with an average for the total of forty-two lymphocytes. Centrifuged specimens have been stained, showing beyond doubt that the cells were of the mononuclear type. We regret to say that the plasma cells, said to be pathognomonic of general paralysis, were not brought out by our staining methods. It is interesting to note that our highest estimation is much lower than that of some other observers.

That a lymphocytosis exists in every case of general paralysis has been established. However, its value in cytodagnosis is greatest in differentiating pseudo-conditions, including arteriosclerosis, neurasthenia, dementia praecox, and alcoholism. Otherwise it has its limitations and proves only that the patient is probably suffering from disease of syphilitic origin.

The application of the Wassermann test to the spinal fluid of general paralytics is claimed by Plaut to be as trustworthy as the agglutination test in typhoid. In a series of two hundred cases Candler, of the pathological laboratory of the London County Asylums, reports 98 per cent positive. The results in our one hundred cases parallel the findings of other observers.

The value of the test when applied to the blood-serum has its limitations, a positive reaction showing, however, that the patient has suffered from syphilis and that the form of insanity is probably of a syphilitic nature. In one case only have we seen a positive blood when the fluid was negative. In this respect

we wish to make known the case of M. C., aged sixty-five, admitted to the State Hospital in a greatly disturbed, and exalted condition. His age made us doubt general paralysis, although his physical and mental symptoms were typical. A history of syphilis fifteen years previous to his admission was obtained and we later learned that under antisyphilitic treatment the patient had done poorly. The blood and spinal fluid were examined on the same day with the findings as mentioned above, and a lymphocytosis of thirty-nine cells per C mm. was also found. Our diagnosis in this case may be questioned, but the constancy of the symptoms, the duration of time existing between infection and onset of mental alienation, the failure to respond to mercurial treatment and the lymphocytosis which was not affected by specific remedies, strongly pointed to the disease being parasyphilis rather than syphilis of the nervous system.

The Wassermann test was positive in the serum in 92 per cent of our cases, while 94 per cent showed fixation of complement when the test was applied to the spinal fluid. The negative findings parallel each other in five cases. There is nothing in common between the amount of lymphocytosis and the intensity of the serum test. Remissions seemingly have little or no effect upon the test as we can show by repeated observations on Mr. S., who, when first examined, was enjoying a remission, his blood and fluid both reacting very strongly to the test. Since that time he has passed through two disturbed periods and is at present going about unattended, the reaction at every interval being positive with the same intensity. The same is true of another individual who showed a negative reaction through his entire course when the test was applied on seven different occasions.

The cerebrospinal fluid of general paralytics under antisyphilitic remedies seems to be unaltered, for there is no change in the cell content nor is the body producing fixation of complement affected. The blood-serum, however, under such medication, undergoes a change, for it has been shown that parasyphilitics reacting positively before mercury has been given, soon become negative when it has been properly administered.

The differentiation between syphilis of the nervous system and metasyphilis, by the application of the Wassermann test, is easily demonstrated, for a positive reaction is rarely seen in the fluid of the former condition, whereas the blood is invariably posi-

tive. The lymphocytosis seen in cerebrospinal lues is usually greater than that seen in general paralysis or tabes, and is rendered normal by specific treatment.

For the Wassermann reaction as a diagnostic method not enough can be claimed. Some obscure conditions in our institution heretofore unclassified, when subjected to this test have later been diagnosed as general paralysis, and after running an atypical course have terminated in seizures. The limited amount of time makes it impossible to make known individual cases and it is our intention to follow this report with one more exhaustive.

Normal cerebrospinal fluid has been shown to contain a protein in the form of serum globulin. Acute and chronic inflammations of the brain and spinal cord cause an increase in this element, as was probably first described by Noguchi. The test, as applied by Noguchi, is known as the butyric acid reaction and is used not only to detect this increase in the cerebrospinal fluid, but likewise in the blood-serum. This globulin is increased in all cases of general paralysis and to it some consideration must be given. The reaction in our hands has been positive in every case, but in other organic dementias we have seen a precipitation by this method. Noguchi claims it to be absent in acute alcoholic psychosis, dementia praecox, imbecility, epilepsy, and some other forms of insanity. Mott speaks of the reaction being present in some nonspecific forms of dementia, the intensity of the reaction corresponding to the degree of dementia. While this test has been criticised by many, as a link in the chain of clinical and laboratory findings it is considered by most to have its place.

Another test described by Ross and Jones for the detection of an increase in the serum globulin has been carried out. The test is made by the contact of the spinal fluid with a saturated solution of ammonium sulphate. The delicacy of this test has proven it to be of little value and nothing can be said in favor of the method.

The duration of the course of general paralysis of the insane is dependent upon many intercurrent conditions and may vary from a few weeks in fulminating types to fifteen or more years in those with prolonged remissions and without complications. Our statistics in this are misleading because incomplete, only forty-one of the number being dead. All running the rapid course are necessarily included, giving an average duration of only two

and one-half years, which will most probably be increased by one year when the death roll is complete.

Whether or not paresis is becoming more frequent is difficult to determine since earlier hospital records are unreliable, owing to the narrower conception of the disease and the absence of lumbar punctures and Wassermann tests. Kirby, of Ward's Island, reports a gradually diminishing rate from 23.1 per cent in 1908 to 16.3 per cent in 1911. The reason for the decrease is the exclusion of cases of cerebral syphilis and various forms of arteriosclerotic brain disease that would formerly have been classified as paresis. In the year 1911, 13 per cent of the men admitted to the Cleveland State Hospital had paresis and 43 per cent of the male deaths were from this cause. As yet there is no known cure. In 2,500 cases reported by Krafft-Ebing none recovered. It is claimed by a few that early treatment may alter the course, but Adolph Meyer has termed this the prediagnostic stage and therefore not conclusive. It would appear, therefore, that prophylaxis involving removal or cure of the almost universally acknowledged essential cause offers the only hope, and if cure in the completest sense is possible, the Wassermann reaction bids fair to direct the course, but a score or more years will be necessary to establish this fact.

In conclusion we wish to thank W. C. Stoner, in whose laboratory the Wassermann tests have been made.

Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages: A natural disposition; instruction; a favorable position for the study; early tuition; love of labor; leisure. First of all, a natural talent is required; for, when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.—*The Law of Hippocrates.*

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EDITORIAL

Serum Reactions in Syphilis.

If to a suspension of the washed red blood-corpuscles of an animal of species A there are added the heated serum of an animal of species B, which has received repeated injections of the corpuscles of an animal of species A, and normal serum, hemolysis occurs. In the terms of Ehrlich's hypothesis, the amboceptor (something developed within the injected animal) mediates a union between the red cells and the complement (a constituent of normal serum), so that the latter is able to act upon the red corpuscles and dissolve them. In 1901 Bordet and Gengou showed that when to such a hemolytic system the further addition is made of the serum of an animal immunized against a specific bacterial organism and of a suspension of the

specific organism used in the immunization, hemolysis does not occur. In other words, by the interaction of antibodies developed in the immunized animal and of the antigen (the suspension of the bacterium used for immunization) with the complement, the latter is fixed or bound; its combining affinities are satisfied, so that it is no longer able to enter into combination with the red cells through the mediation of the amboceptor and it is not, therefore, able to act upon the red corpuscles and dissolve them. It is, of course, apparent that the reaction is a quantitative one and that the dosage must be such that all the complement will be bound by the interaction with the immune serum and the antigen.

Wassermann sought to apply this phenomenon of complement fixation to the diagnosis of syphilis. With the exception of the syphilitic antigen all the various substances needed were apparently at hand, the serum of a luetic person being supposed to be the antibody serum. Since a pure culture of *Treponema pallidum* was not available for the preparation of the antigen, Wassermann used the liver of a syphilitic fetus, an organ which may be exceedingly rich in treponemata. An extract of such a liver must contain substances derived from the organisms present, just as the suspension made from a pure culture of typhoid bacilli in the Bordet and Gengou reaction must contain substances derived from the bacilli. But it is apparent that the Wassermann antigen must contain also substances derived from the liver tissue and that the chances are that these are present in much greater amounts than those coming from the treponemata. That the Wassermann antigen is not specific, in the sense that the typhoid bacillus antigen of the original Bordet and Gengou phenomenon is specific, was soon proven by the fact that tissues free of traпонemata could act with syphilitic serum in causing complement fixation. Furthermore, it was shown that solutions of pure lipoids are similarly efficacious, so that it would appear that the lipoid constituents of the syphilitic liver antigen may be the important element in the original Wassermann reaction.

By saying that the Wassermann test is not a specific syphilitic reaction in the sense of the Bordet and Gengou phenomenon we do not mean to insinuate that it is not, therefore, a specific diagnostic test for syphilis. The diagnostic value of any laboratory method must be measured in the terms of known cases of the disease for which it is to be used. Measured thus, the

Wassermann reaction has proven of inestimable value in the diagnosis of lues. That variable results have been obtained by different investigators does not speak against the test; the variations may be due merely to the extreme quantitative delicacy of the reaction. But in view of the nonspecific nature of the Wassermann antigen, we may be permitted a slight amount of hesitation in the acceptance of the conclusion drawn in regard to the parasyphilitic conditions, namely, that a positive reaction in dementia paralytica and tabes, diseases characterized by degenerative changes in tissues exceedingly rich in lipoids, is absolute proof of the syphilitic origin of these diseases. Our hesitation is somewhat increased by the fact that the one disease other than lues which gives a high percentage of Wassermann reactions, namely leprosy, is likewise characterized by degenerative processes in nerve tissues.

What the Wassermann reaction has needed to make it exactly comparable to the Bordet and Gengou phenomenon, upon which it is based, is a pure culture of *Treponema pallidum*. In 1907 Levaditi was able to obtain multiplication of a spiral organism derived from syphilis in collodion sacs placed within the peritoneal cavities of monkeys. Such cultures were always mixed with bacteria and were nonpathogenic. In 1909 Schereschewsky obtained an impure culture from a chancre inoculated into horse serum. In 1910 Mühlens, and in 1911 W. H. Hoffmann obtained pure cultures, but these were nonpathogenic. During the past year Noguchi reported the obtaining of pure cultures of several strains of *Treponema pallidum*, which are pathogenic for rabbits and monkeys. From such cultures it is possible to prepare a specific antigen. Noguchi has already reported briefly upon the results obtained by the use of such an antigen. As one might expect from the theoretical considerations involved lipoid antigen and *pallidum* antigen do not give identical results. Noguchi concludes "(1) that the Wassermann reaction is caused by the lipotropic substances, but not by the antibodies which combine specifically with the *pallida* antigen; (2) that the fixation produced by culture *pallida* antigen with certain syphilitic serums is caused by the specific antibodies contained in the latter and may constitute a specific diagnostic method for syphilis." He has found that in the serum of rabbits with experimental syphilitic orchitis "there is no indication of the presence of a sufficient amount of the antibodies for the *pallida* antigen, although it gives a strong

Wassermann reaction." He says further: "We have in the Wassermann reaction a fair measure of the activity of the infecting agent, and now we will have in the *pallida* fixation reaction a gauge for the defensive activity of the infected host" (*Jour. A. M. A.*, April 20, 1912, p. 1163).

The cultivation of *Treponema pallidum* has given us still a further reaction. In tuberculosis the tissues become sensitized to specific protein substances produced by the destruction of tubercle bacilli within the body. This sensitization is manifested by the general or localized reactions which occur after the injection or the introduction of tuberculin, which contains the specific bacterioproteins derived from pure cultures of *Bacillus tuberculosis*. The luetin reaction of Noguchi indicates that a similar phenomenon of sensitization may occur in syphilis. In certain cases of lues the introduction into the skin of an emulsion made from killed pure cultures of *Treponema pallidum* leads to a localized reaction. This occurs in cases in which the duration of the disease has been of such length that the formation of a sufficient amount of specific proteins has followed the constant slow destruction of the organisms, or in those cases of shorter duration in which a massive destruction of the organisms is brought about through energetic treatment.

In syphilis we have, then, three reactions: the original Wassermann or lipotropic reaction, the *pallidum* fixation reaction and the luetin reaction. Although we are convinced, because of the theoretical considerations which have been outlined, that the Wassermann reaction is not a specific luetic reaction, it is too early to say that we must alter any of the conclusions which have been drawn from the use of the Wassermann test, or that the *pallidum* fixation reaction or the luetin reaction will give diagnostic results of greater value than the Wassermann reaction. What is already evident is that through the comparative use of these three reactions there are opened up, in the case of syphilis, opportunities more wonderful for the study of the biological mechanisms concerned in a specific disease than are available in any other pathological condition.

Personal Ambition Versus Public Welfare.

It is the usual thing for a public official who desires either reelection to his post or election to a higher one to give up to a large extent the time which he should devote to the service of the

people to personal efforts to further his own ambitions. As a usual thing, however, it is his custom to endeavor to avoid offending even the most humble of his possible constituents, even though he does not intend to perform what he may promise them. We have as political head of the State a man who not only uses the people's time for his own purposes, but also neglects even common courtesy, which is less frequently done. It is true that as far as accessible evidence goes, he has neglected only requests emanating from physicians, and that has been a more or less well established rule throughout his administration, for it is evident that physicians are not thought to have sufficient political influence to make attention to their requests worth while.

The most conspicuous example of this disregard for questions which have no apparent bearing on the nomination convention is in connection with the International Congress on Hygiene and Demography, which is to be held in Washington in September. The purposes and organization of the Congress have already been explained in this Journal (page 307 of the April issue). It is the first Congress on Hygiene to be held in the United States, and inasmuch as we are behind the rest of the world in the matter of Public Health and sanitation in general, it is the more important that we should do the best we can.

Accordingly in February, 1911, the Secretary of State of the United States at the request of the President, sent letters to the Governors of the various States, asking them to appoint State Committees to take charge of the work in the States, and to pass on to the Mayors of the different cities the request of the President that they should send representatives and do what they could in the way of assistance. In March, 1912, or some *thirteen months* after the letter from Washington, and after additional urging, His Excellency, Governor Harmon, was pleased to appoint the State Committee, but at present, about *sixteen months* after the request, and in spite of repeated letters, not a single Mayor has been notified. More than this, the letters which have been repeatedly sent to the Governor by physicians of international reputation have never even been acknowledged, an act of discourtesy which is remarkable.

The results of this neglect of duty and courtesy are manifold. It is clear that the State Committee, appointed over a year later than it should have been, is much handicapped in the matter of obtaining material, and it is also clear that in the absence of any

official notification to the municipalities it is even more difficult to get proper appreciation of the importance of the Congress. It also appears clear that the manifestations of indifference to the public welfare, the reputation of the country and the dictates of courtesy are not the best of indications that His Excellency is fitted for a position where these very qualities should be paramount.

If the State of Ohio and the City of Cleveland are not represented in the Congress and in the Exhibition as they should be, the fault will lie at the door of the Governor, and the ill effect a poor representation will have on our foreign visitors will come back on those States which, through their preeminence in population and wealth, should have been in the forefront.

Amebae and Dysentery.

Amebic dysentery is a disease concerning the etiology of which medical investigators early came to a conclusion, one which however, was not for many years accepted by biologists. It was not until a comparatively short time ago that the opinion of medical men, based upon insufficient evidence, was proven correct by the more fundamental observations of a biologist. It is easy to understand why the side with which he was most familiar should have weighed more heavily with the medical investigator, and why he should have given less weight to the objections offered by biologists.

For the clinician tropical dysentery is a rather well characterized disease. Its symptomatology and its rather peculiar complications distinguish it from the other chronic dysenteries. For the pathologist also the disease has its distinguishing characteristics. The undermining of the intestinal lesions and the subacute nature of the inflammatory process which spreads in the submucosa and brings about the undermining of the mucosa; further, the relative frequency of hepatic involvement together with the size, localization and subacute and chronic inflammatory character of the liver abscess; all of these factors constitute a complex which might be brought about by a condition primary in the intestine due to agents other than amebae. As a matter of fact, however, this clinical and pathological complex is practically never seen unassociated with amebae.

In the stools of patients suffering with this form of dysen-

tery, which is most frequent in tropical and subtropical regions, amebae were probably first seen by Lambl in 1860. Their presence was also noted by Lewis and Cunningham in 1870. In 1875 Loesch gave a detailed description of the organism and named it *Amoeba coli*. Later investigators found the organism to be uniformly present not only in the stools, but also in the deeper tissues of the intestinal ulcers as well as in the complicating lesions. Little blame can attach to medical observers if they deduced a causal relationship from the constant presence of an unusual type of human parasite in a disease which they considered clinically and pathologically characteristic.

However, while some were noting the occurrence of *Amoeba coli* in dysentery, others were finding an apparently identical organism in healthy intestines. The percentage of healthy individuals who may harbor intestinal amebae has been found to vary in different regions of the earth from nothing to 50 or even 75 per cent. Zoologists began to take exception to the prevailing medical conclusion. Zoological opinion varied from a belief that the ameba has nothing to do with the disease to the belief that it might become an active pathogen, but only after lesions had been set up in the intestine by bacteria. In general, biologists wisely took a "not proven" attitude and set up the dictum that the etiological relation of *Amoeba coli* to tropical dysentery could not be considered established until it became possible to distinguish between the ameba found in the healthy intestine and that which occurs in dysentery.

Morphological characteristics sufficient to permit such a differentiation were described by Schaudinn in 1903. Zoological usage rendered renaming necessary. The organism which Schaudinn found to be associated only with dysentery he named *Entamoeba histolytica*, whereas the other species, which may be present in the healthy intestine, corresponds more closely to the original *Amoeba coli* of Loesch and is *Entamoeba coli*. Schaudinn's work, upon its face, was conclusive and, if correct, left unanswered no question which could invalidate the older medical belief that a true amebic dysentery exists. He noted morphological characteristics which permit the expert to differentiate the two species of intestinal amebae, he described quite marked differences in the details of the life histories of the two species and he proved the pathogenicity of *Entamoeba histolytica* and the nonpathogenicity of *Entamoeba coli*.

Schaudinn's work received immediate confirmation from many quarters, Craig, of the United States Army, being one of the first to attest the correctness of his views. Scientific investigators, however sublime they may feel their own particular researches to be, are only human and it was inevitable that exception should be taken to the findings of Schaudinn. Of Americans who disagreed we may mention Musgrave and Clegg, working in the Philippines, and Walker of Boston. Their conclusions, divergent from those of Schaudinn, were based upon amebae cultivated from intestinal contents. The futility of such work has been made apparent by the fact that many of the species of cultural amebae with which they worked are not intestinal amebae at all, but are merely free-living forms, the cysts of which passed through the intestine unchanged and uninjured.

Today the older medical conclusion, that tropical dysentery is an amebic infection, seems well established. Besides the additions which have been made to our knowledge of the biology of the intestinal amebae, there has been added something of medical importance. Whereas Schaudinn described two species of amebae, one pathogenic and the other nonpathogenic, later work has shown that there are several species of pathogenic amebae. Furthermore, every case of intestinal amebiasis is not a case of amebic dysentery, even if symptoms of dysentery may be present. Before a diagnosis of amebic dysentery is permissible it must first be established that the ameba which is present is one of the pathogenic species. This may make necessary a revision of Osler's statement concerning amebic dysentery, that "It is the commonest variety throughout the United States" (*The Principles and Practice of Medicine*, 1901, p. 195). While amebae may be present in the majority of cases of dysentery in this country, the organism concerned is most probably *Entamoeba coli*; most of the chronic dysenteries with which the practitioner of more northern regions comes in contact do not seem to be, clinically, pathologically or etiologically, the same as the amebic dysentery of the tropics. At the same time, the practitioner cannot permit latitude alone to exclude the possible amebic nature of any given case of dysentery.

The Owen Bill.

Senate Bill 1, "A Bill to Establish an Independent Health Service," usually referred to as the Owen bill, has been favorably

reported upon by the Committee on Public Health and National Quarantine of the United States Senate and has been placed before the Senate as Calendar Bill No. 561. There is some hope that this measure will be reached before the adjournment of the present session. If that is the case we shall have the satisfaction of knowing, no matter whether the bill is passed or defeated, just where the individual members of the Senate stood upon so important a matter. The defeat of the measure will be due, in part at last, either to a woful lack of interest upon the part of the medical profession or to the inability of the profession to exert any influence for good upon the practical politicians who represent its members in the Senate. If the bill came up for a vote tomorrow and were defeated we do not believe that the profession could claim with any very good grace that the members of the Senate had failed to pay heed to the desires of their medical constituents. Rather, the profession would stand convicted of having failed to have made its desires known.

Doctors are well organized. Through their local, state and national societies they have brought about considerable advancement within the profession. But in the matter of exerting influence toward procuring needed legislation medical organizations fail to be as powerful or as conspicuous as such made-for-the-moment-and-for-the-particular-purpose, pseudonymous organizations as the League for Medical Freedom. The latter are exceedingly active in their endeavors to defeat the bill, whereas we medical men are at present less than passive in urging its passage. It matters not that the avowed arguments against the measure are so specious that they are sufficiently answered by the wording of the bill itself or that the hidden power behind such arguments comes from those concerns which have most to fear from a proper strengthening of health regulations. The vast majority of laymen will never read the terms of the bill. They will swallow without question the statement so vehemently made to them that the bill will destroy any individual choice in the matter of medical treatment, even in the face of the two specific provisions of Section 3, which read as follows: "... this act shall not be construed as attempting to authorize the Health Service to exercise or attempt to exercise, without express invitation from the chief executive or other proper authority of the state, any function belonging exclusively to such state, or to enter any premises without the consent of the owner or occupant thereof; ... the

Health Service established by this act shall have no power to regulate the practice of medicine or the practice of healing; or to interfere with the right of a citizen to employ the practitioner of his choice, and all appointments within the Health Service, including the head of the service, shall be made without discrimination in favor of or against any school of medicine or of healing."

We are willing to take it for granted that public health is something that does not much interest most of the members of the Senate, especially in the face of advancing warm weather and of the heat of an approaching political campaign. They will, therefore, be all the more readily exerted to adverse action by the protests which are being sent in at the behest of the League for Medical Freedom, if the medical profession, which ought to be familiar with and ought to see the need of the provisions of the bill, sits idly by and makes no attempt toward concerted action. The Academy of Medicine as a body and its constituent members as individuals should impress upon the Senators from Ohio the need of favorable action upon the measure. Furthermore, since no suspicion of sectarian practice can attach to the provisions of the bill, it is fair to hope for similar action from intelligent homeopathic and eclectic practitioners. If we may be permitted to descend to the language of close-to-the-people journalism: get busy, friend doctor, and write or wire Senators Burton and Pomerene to vote for the Owen bill.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Nocturnal Enuresis: John Ruhräh, in the *American Journal of the Medical Sciences* for February, states that nocturnal incontinence of urine in children is one of the common and one of the most troublesome conditions which the physician is called upon to treat. The physician, after one or two therapeutic ventures, dismisses the case with the suggestion that the adenoids should be removed, or if it is a boy, that he be circumcised, and then if these suggestions are carried out, and a cure does not result, the family of the child become resigned to what they regard as inevitable. If we exclude those cases in which there is evidence of mental deficiency and those caused by congenital malformations, we have a group of cases which were formerly regarded as "essential" or idiopathic enuresis. As our knowledge of the subject has increased, the idiopathic cases have gradually diminished in number, and Bazy aptly remarked that essential enuresis means essential ignorance. Many children with enuresis suffer from an overirritable nervous system, and this may account for small lesions causing the urine to be passed through reflex irritability. In other cases the lesion is marked, and would affect the nervous system of the normal child. Bed-wetting may result from mere laziness, and in other instances a child may sleep so soundly that the warning of the distended bladder is unheeded. Another

cause is abnormal muscle tone, and Merklen considers enuresis an element of weak motor inhibition. Among the more interesting of the newer suggestions as to treatment are the results of Williams in treating these cases by the use of desiccated thyroid. His cases had subnormal temperature and evidence of thyroid insufficiency, and he obtained wonderfully satisfactory results in all except one case, and in this case the child did not have a subnormal temperature. Williams gave one-half grain of the dried thyroid twice daily to children between two and six years of age and this may be increased for older children. The increase in dosage should be made slowly as directly opposite effects are occasionally induced by overdosage. Ruhräh has used this method and in a small proportion of cases in which there were more or less marked signs of thyroid insufficiency, the results were quite remarkable. These were children with adenoids and enlarged tonsils, or in some cases, children in whom the adenoids or tonsils had been recently removed. In his cases the effect was obtained promptly or not at all. In every case in which a favorable result was obtained, a marked difference was noticed after the administration of one or two doses of the drug, and in all cases within a week. Another remarkable observation coinciding with that of Williams' is that the undersized children gained weight rapidly. When there is no other indication for treatment he has found the use of atropin to give better results in a greater number of cases than any other one thing, and to be of any service it must be given in full doses. In nocturnal cases a dose at five o'clock and at bedtime is all that is required. In cases occurring both during the day and night the drug is advised every three hours. He usually prescribed one grain of atropin sulphate in two ounces of water, each drop containing about 1-1000 grain, and usually as many drops will be required as the child is years old. The proper method of dosage, however, is to start with one or two drops, increasing each dose one drop at a time until flushing of the face and neck occurs some twenty minutes after taking the drug. The dose should then be diminished one drop, and this amount continued until the child has ceased urinating at night and for at least two weeks later, when the drug may be dropped gradually, diminishing a drop at a time until one drop is reached when it may be stopped.

Idiopathic Epilepsy: L. Pierce Clark, in the January number of the *Archives of Internal Medicine*, considers the curability of idiopathic epilepsy, showing that the disease is susceptible of arrest or cure even in severe and long standing cases, and he also reemphasizes the necessity of depending on an intensive application of the so-called hygienic method of treatment in contradistinction to the sedative plan of treatment *per se*. In all the spontaneous cures he has been able to study, the careful adoption of some self-applied plan of hygienic treatment is in evidence. One cannot arrive at anything definite regarding our subject as to the permanency of a cure or arrest without knowledge of the psychical and somatic factors of individual cases being known. The cured patient must be able to assume charge of his or her affairs, assume the responsibilities of life. In short a changed mental attitude toward himself and his environment marks the stability of an arrest far more than a mere cessation of fits. The irritability must disappear, ambition and proper initiative must return, and above all the memory must show decided mending. In point of fact most epileptologists have learned to disregard the continuance of fits in a measure if the other more subtle but pregnant signs of improvement are in evidence. While writers on this subject differ in minor details on the makeup of the principles of the so-called hygienic methods or nonsedative plan of treatment, nearly all are agreed that the issues of diet, occupation, recreation, and mental training and discipline are the essential components of it. To his mind the introduction of special medicaments of sedation in epilepsies has been fraught

with more harm than good. The sedatives have clouded the issues of causation and prognosis to a remarkable extent. The bromids mask the progress of the disease and make a full understanding of the forces at work in the individual case unbelievably complex. He has seen many patients treated by sedatives steadily advance in physical, mental and moral deterioration in the face of a steady cessation of fits. When we learn that the bromids are not really curative agents, we shall relegate them to a real use, (1) as a therapeutic means of determining the severity of the disease with which we have to cope, by determining the sedative level necessary to hold the fits in check, and (2) as adjuvants after all discoverable causes are set right and in such cases needing some degree of sedation to bridge over expedient periods. In cured patients on whom the bromids have been used it would seem that the results are brought about in spite of the bromids rather than because of their use. We now recognize more and more that true epilepsy is a real cortical disorder of which the fits are but one of the psychic incidents and that the seizures should no longer usurp the whole field of attention with their special and specific therapy of sedation.

Hexamethylenamin: P. Tetens Hald, in the *International Clinics* (Vol. 1, Series 22nd) treats of the use of hexamethylenamin in aural surgery. In April, 1909, Crowe published his researches on the excretion of hexamethylenamin in the cerebrospinal fluid, and stated that after therapeutic doses it regularly appears in the liquor cerebrospinalis where it may produce an inhibiting effect on the growth of micro-organisms. Among later investigators, Rowell, Brem and Ibrahim have published observations believed to show a beneficial action of the drug in meningitis, but these observations Hald believes to be not very conclusive. He has observed at least two cases, without meningeal symptoms before the operation, develop a fatal meningitis subsequent to incisions of the dura mater, although hexamethylenamin was administered immediately after the operation. He regrets that he cannot express himself with the optimism of Crowe as to the prophylactic value of the drug in meningitis, although he does not go so far as to deny that it possesses such a value. According to his experience one is justified in considering the drug as one which may with some probability be expected to prove helpful in some cases of otogenic meningeal complications, although it will certainly turn out unsuccessful in the majority of cases. Still he believes that a trial of it is indicated. It is to be given in doses of 16 grains four times a day to adults, correspondingly smaller doses to children for a few days at the utmost; the urine must be examined for albumin every day during its administration. As a prophylactic it ought to be given some hours before the operation in question. If the patient is suffering from vomiting or cannot be made to swallow, the drug may be safely injected subcutaneously in the same doses, the solution being one of 7 per cent strength. Subcutaneous injection insures a stronger concentration of the drug in the cerebrospinal fluid than when given by the mouth and should therefore be preferred in cases of manifest meningitis.

Chronic Disease: In the February number of the *Monthly Cyclopaedia*, J. Madison Taylor summarizes his conclusions as to the treatment of chronic disease. (1) In chronic disease the organism as a whole becomes exhausted through the protracted, complex derangement; hence reparative agencies are at a disadvantage as compared with the normal poise and efficiency of the organism when acute disease or injury arises. (2) Therefore, the pathology of chronic disease is something much more than that of acute states, involving many problems of morbid physiology and psychic disorder yet unsolved. (3) Remedial measures

must be directed to the restitution of functional poise and should include all those rational measures capable of conserving and enhancing the auto-protective and autoregulation forces. (4) The basis of relief and cure is to be found along the line of palingenesis (development according to the primitive or original method); also of the overcoming of agencies which retard physiological processes, rehabilitation of all functional derangements, regulation of all contributory factors in vital action, so that full compensation shall be achieved of existing damagements. (5) The utmost drugs and medicines can do is to contribute to these desirable effects, however nearly they may approach to the role of "specifics," for overcoming disease entities, unlocking the doors for toxic wastes, and freeing the organism as a whole from the disabilities present. (6) The measures on which, in the final count, we can chiefly depend, are included under the term personal hygiene: (a) conservative personal hygiene; (b) constructive personal hygiene, and especially (c) reconstructive personal hygiene. (7) The possibilities of reconstructive personal hygiene lie in the direction of making available latent undeveloped energies in any adult below the normal from whatsoever cause; in systematically utilizing the inherent dynamics and in raising the coefficient of efficiency. (8) The practical purpose of the paper is to call attention to the fact that much can be achieved by bringing into line the functional power of the organs and tissues so as to secure the completest transformation of kinetic into dynamic energy, no matter what the morbid agency. (9) Special vigilance is urged upon clinicians in restoring tissue elasticity, mobility, normality in the hydrostatic mechanisms: in amplifying the functional powers of respiration, circulation, urination, the skin, etc., and in affording support for relaxed structures.

Thyroid Therapy: Heinrich Stern, in the March number of *American Medicine*, states that in compensatory therapy there are no drugs of greater importance and wider range of application than the preparations of the thyroid gland; notwithstanding this, however, their employment is still a very limited one. Its use is usually restricted to instances of obesity, myxedema, and allied conditions, forgetful of the fact that thyroid insufficiency, or perversity, may evince itself in dozens of intermediary phenomena or conditions. The lesser exhibitions of thyroid insufficiency are at least as amenable to compensatory therapy as are the pronounced syndromes. There is, however, no parallelism between the composition of the sheep's thyroid usually employed, and that of the human gland; he has shown that there is about sixteen times as much arsenic in the human as in the sheep's thyroid, and while its activity is only in part due to its arsenic content, there is a distinct increase in the activity of the commercial thyroid when arsenic in a certain proportion is added to it. He found that considerably smaller doses of thyroid thus combined would yield as good or better results than when given alone in the usual massive amounts. He has never seen any untoward effects of thyroid medication when arsenic was given together with physiologically efficient but small doses of the glandular substance. It does not make any material difference which preparation of arsenic is employed for purposes of thyroid medication. For many years he used arsenious acid, but for the past three years has employed sodium cacodylate as a corrective and enhancer of thyroid activity. It is for the reason that the cacodylates are better borne and so may be administered for longer periods than the commonly prescribed preparations of arsenic that they are more efficient stimulants of general metabolism than the latter. He also advises the addition of epinephrin as a heart stimulant in those cases in which the thyroid cacodylate compound is indicated. The dose of these drugs in combination which he recommends is one grain of desiccated thyroid, 1-60 grain of epinephrin, and 1-200 grain of sodium cacodylate. In the absence of any

determinable local cause, or systemic disorders, he has for many years considered imperfect nutrition of the hair upon the scalp and premature baldness as being due to a state of hypothyroidism in a large proportion of cases. So long as the papillae of the hair are not destroyed one may at least expect some beneficial influence from the use of the thyroid. The dose usually employed by him in instances of falling hair or alopecia is from one to two of the afore specified doses three times a day. The medication is continued for not less than eight to ten weeks, when if no definite results are obtained it may be inferred that hypothyroidism is not connected with the condition. He has also found it of value in some cases if gingivitis.

Male Fern: *The New York Medical Journal* for April 6th comments on the toxicity of male fern when given with castor oil. The occasional cases of poisoning from this cause and the presence on the market, in Germany, of a preparation (Tritol-Stark) in which extract of male fern and castor oil occur in combination, warrant a warning. This is all the more necessary in view of the fact that textbooks on pharmacology fail to lay strong emphasis on the dangers of the combined use of these two agents, or even of the use of the oil as a purgative after the vermifuge has been used. Indeed, most of them seem to make light of the toxicity of aspidium, although Grawitz and other authorities have laid stress on its dangers. Some years ago, Sidler Huguenin in a series of seventy-eight reported cases of aspidium poisoning found that twelve had terminated fatally. When castor oil is given with the oleoresin the normal or therapeutic dose is itself rendered toxic, as the filicic acid, one of its toxic constituents, is dissolved by the oil and thus readily absorbed from the alimentary canal. So thoroughly is this fact recognized in some European countries that such a combination is prohibited by law. Another feature which should be borne in mind in this connection is that even if toxic phenomena due to aspidium do not prove fatal they are apt to produce after effects of a severe nature on the visual apparatus. Optic atrophy with typical gray or white discoloration of the optic nerve and contraction of the retinal arteries has been observed, and transient amaurosis with dilated nonreacting pupils is comparatively frequent. In forty-four of Huguenin's cases disease of the optic nerve was the main lesion, and of these forty-four, 57 per cent had received castor oil with the aspidium. Magnesium sulphate is fully as efficacious as castor oil, tends to prevent absorption of filicic acid and promptly expels the parasite.

Styptol: *Merck's Archives* for January (*Deutsch. med. Zeitschr.*) states that in former years the sovereign drug was ergot for all forms of uterine hemorrhage. Ergot has, however, steadily lost in popularity owing to inconstancy of action and a number of most undesirable after-effects. An excellent and efficient substitute, according to Magerstedt, is styptol. While ergot contracts the uterine muscle, styptol will slow the blood current and contract the vessels of the genito-urinary organs. The latter process is not painful, and the general slowing of the blood stream is explained by the sedative action of the drug. Chemically styptol is the phthalate of cotarnin and probably both components participate in its action. Disagreeable after-effects were not seen, since the toxic dose is considerably higher than the therapeutic. The drug was employed after miscarriage, (six to eight tablets). There never was any pain, the hemorrhage ceasing on the first day and the uterus contracted rapidly. It was also prescribed after artificial delivery; a remarkable feature here was the small amount of blood lost, and the prompt involution of the womb. In menorrhagia of various causes the action was also all that could be desired. Even with maximum doses, (ten tablets daily) no

untoward symptoms were complained of. Ergot could be dispensed with altogether except in one case where the patient complained of increased difficulty of hearing after styptol, an observation that requires further confirmation. Good results were also seen in a ruptured varix, and in bleeding from piles.

Review of the Progress of Medicine. Therapeutic Pneumothorax.

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Artificial pneumothorax for therapeutic purposes was described nearly a century ago by Carson, an Englishman. The procedure, however, was entirely abandoned until Forlanini, in 1882, as a result of certain clinical observations, again suggested it. He did not practice this treatment, however, until 1892, which really marks the beginning of the modern and now rather extensive application of this method. In 1898 Murphy of Chicago made a further contribution to the subject. Since then it has been developed in Germany, especially by Brauer, Lexer and Schmidt, and in various other countries.

The rationale of therapeutic pneumothorax is, of course, the time honored principle of rest to a diseased organ. The collapsed tuberculous lung is thus put at rest just as a tuberculous joint is immobilized on a splint. Nature gives her suggestion in this direction in pleurisy with effusion and spontaneous pneumothorax, which, as is well recognized clinically, exert a favorable influence on pulmonary tuberculosis in a certain proportion of cases. As the heart in rheumatic fever may suffer permanent damage while the same process in the joints subsides entirely, so the lung in constant motion has less resistance against a chronic infection.

There are, however, other advantages to be gained from collapse of the tuberculous lung. The absorption of toxic products is diminished so that in many cases the hectic fever promptly falls. Marked constitutional symptoms and high fever constitute one of the special indications for artificial pneumothorax. The expectoration, although often temporarily increased by contraction of the lung, is later checked and sometimes stopped altogether. Repeated or persistent hemoptysis may be similarly controlled. Further infection of the lung or extension to the opposite side is less probable. Cicatrization is favored by the apposition of walls of cavities and the expression of infections contents as well as by rest. A compensatory hyperemia in the opposite lung results from the obstruction to the circulation in the one branch of the pulmonary artery and may favorably influence a very early tuberculosis, which is often present. If the one lung is free from disease, it remains so, according to most writers, after pneumothorax is produced, unless there is excessive positive pressure in the pleural cavity, interfering with the normal excursion of the lung. Klemperer and others have reported cases of extension to the sound lung following this faulty technique. A relative anemia is produced by the undue pressure on the collapsed lung, with no more complete immobilization.

Among the types of cases, in which the pneumothorax treatment is indicated, may be mentioned: Unilateral extensive tuberculosis or associated with very early tuberculosis on the opposite side; tuberculosis of moderate extent but resisting all other treatment or progressing when the patient is apparently under the most favorable conditions; septic cases with high fever, exhausting sweats and severe digestive disturbances; uncontrollable pulmonary hemorrhage, when the source of the hemorrhage can be localized. From these limitations it is apparent that artificial pneumothorax can never be a broadly applicable method of treating tuberculosis. Murphy, how-

ever, believes it is more practicable in the early apical or monolobular cases. The selection must depend on the conditions in the individual case. Forlanini treated bilateral tuberculosis by alternately producing pneumothorax on the more affected and later on the less affected side. Schmidt applied the treatment to other lung conditions, especially bronchiectasis, aspiration pneumonias and fetid bronchitis. When there is marked cicatrization of the lung parenchyma in bronchiectasis or if there are dense adhesions the results are not very favorable—less so than in tuberculosis. Schmidt considered the aspiration pneumonias and fetid bronchitis cases better adapted to pneumothorax treatment and reported three successful cases in pneumonia complicating cancer of the oesophagus.

Contraindications to the treatment, of greater or less importance, are not very infrequent. All writers consider bilateral advanced tuberculosis as entirely unsuitable. Murphy, who, as above indicated, selects the early cases for his injection treatment, thinks that all extensive or chronic cases are unfavorable because the fibrous tissue deposited in the lung prevents its compression and pleural adhesions interfere with its collapse. Cavities, however, are of themselves rather an indication than a contraindication, especially when limited to one lobe. Extensive pleural adhesions on the affected side are always a disadvantage, although rarely to be diagnosed with certainty before trial injection. Unlocalized hemorrhage is a contraindication as it might be seriously increased if it should come from the untreated side. Forlanini considered caseous pneumonia a distinct contraindication, because of the danger of disseminating infection.

The methods of producing artificial pneumothorax vary in a number of details but are similar in principle. A good precaution in any case is the use of morphin before hand to allay the anxiety of the patient and control pain, especially when pleural adhesions are probably present. Forlanini used the simple puncture method with a sharp trocar. The Germans, especially Brauer, consider it safer and more satisfactory to make an incision under local anesthesia and to bluntly separate the tissues down to the parietal pleura. The excursion of the lung can be seen through the pleura if there are no adhesions. The puncture can then be made with a blunt trocar. Others use a blunt trocar after simply puncturing the skin with a knife point. The trocar in all cases is connected with a gas reservoir. Nitrogen has been most generally used, but Schmidt and others claim that air passed through bichlorid solution is quite as satisfactory. A manometer may be connected with the trocar to show the negative intrapleural pressure and to control the injection of gas, especially if for any reason it is desired to produce only a partial pneumothorax. The breath sounds should also be followed as a gauge of the degree of collapse of the lung. If there are firm adhesions at the point of puncture the manometer will not show a negative pressure and if, as Murphy does, a stream of gas be turned on, it will not escape. If only a small partial pneumothorax is produced at first, a moderate positive pressure (thirty to forty centimeters of water), controlled by the manometer, may be used to break up soft adhesions. The exact point of insertion of the trocar is not important. Schmidt prefers the ninth interspace in the postaxillary line unless adhesions interfere. In middle or lower lobed tuberculosis Murphy gives the best point as the third interspace just outside the nipple line. More caution is required at the initial than at any subsequent injection. Some advise only partial pneumothorax at first by the injection of only 50 to 200 Ccm of gas, followed by repeated injections of small quantities. Simple puncture is all that is necessary for secondary injections. Complete pneumothorax at the first injection, however, does not usually cause any distress and quantities of gas of 1000 to 1250 Ccm are not excessive. The use

of a firm compress over the puncture wound is a good precaution against subcutaneous emphysema. The interval between injections varies with the amount of gas used. If large, Murphy gives the interval as six to ten weeks, but the indication is the return of the breath sounds. X-ray pictures at various stages are also a great aid. The treatment should be continued for six months to two years, or until the expanding lung is free from rales or other signs of disease. The undiseased lung is capable of complete distention after long periods of collapse.

There are several complications that are always mentioned in connection with the production of artificial pneumothorax. Air embolism with the puncture method has been especially described by the Germans. Samson states that cases of hemiplegia, aphasia, paralysis of eye muscles and sudden death have been reported. Murphy and Forlanini do not consider embolism a very real danger. Hemorrhage from puncture of the lung or of an intercostal artery may occur, especially if there are adhesions. Pleural effusion sometimes occurs, which may become purulent. It may be due to trauma to the visceral pleura, to extension of a subpleural lesion after collapse or to the breaking up of fresh adhesions. There may be severe pain from the puncture of the pleura or from the stretching of pleural adhesions, resulting in various reflex phenomena or collapse. More or less dyspnea occasionally follows the injections. Subcutaneous emphysema in some degree is frequent but not serious. It usually clears up in a few days.

The results are difficult to judge because of the great variety of cases, and because of the comparatively short time that therapeutic pneumothorax has been applied to any extent. Brauer and Spengler claim to have cured fifteen hopeless consumptives. There are, however, numerous failures. Success depends in large measure on the proper selection of cases. A long period of observation is necessary in order to affirm a cure. There is no doubt that cough and fever may be controlled. The procedure has a rational basis and offers hope in cases beyond any other form of treatment.

New and Nonofficial Remedies.

Since the publication of "New and Nonofficial Remedies, 1912," and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies.

Formicin is a formaldehyde-acetamide, a molecular compound of formaldehyde and acetamide. It is a thick, syrupy, water-soluble liquid, having a faint formaldehyde-like odor and a slightly acid, bitter taste. Solutions of formicin liberate formaldehyde gradually at body temperature, and thus exert an antiseptic action. Formicin solutions are employed as injections into tuberculous and non-tuberculous joints, tissues and abscesses. Kalle & Co., New York (*Jour. A. M. A.*, April 6, 1912, p. 1014.)

Iodo-Casein is a compound of iodine with milk casein, containing about 18 per cent of iodine in organic combination. It is a powder, almost odorless and tasteless and insoluble in water. It is said to undergo practically no change in the stomach, but to be quickly digested and absorbed in the form of soluble iodides, in the intestines. Dose, 0.3 to 1.3 gm. (5 to 20 grains). Iodo-Casein is also marketed in the form of tablets each containing 0.15 gm. (2½ grains) and 0.3 gm. (5 grains) iodo-casein. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, April 6, 1912, p. 1014.)

Meningo-Bacterin is a meningococcus vaccine believed to be useful in immunizing against the meningococcus of Weichselbaum. H. K. Mul-

ford Co., Philadelphia, Pa. (*Jour. A. M. A., April 13, 1912, p. 1114*).

Pharmaceutical Preparations of Accepted Articles:

L-Suprarenin Synthetic Bitartrate Tablets, 0.001 Gm., each containing 1-suprarenin synthetic bitartrate equivalent to 0.001 Gm. (1-65 grain) 1-suprarenin synthetic (*Jour. A. M. A., April 13, 1912, p. 1114*).

Colon Vaccine is a *Bacillus coli* vaccine marketed in bulbs ready for use. Parke, Davis & Co. (*Jour. A. M. A., April 20, 1912, p. 1195*).

Gonorrhead Vaccine (Combined) is a gonococcus vaccine containing *Micrococcus gonorrhoeae* and *Staphylococcus albus, aureus and citreus*. Parke, Davis & Co., (*Jour. A. M. A., April 20, 1912, p. 1195*).

Typhoid Vaccine (Prophylactic) is a typhoid vaccine containing *Bacillus typhosus*. Parke, Davis & Co., (*Jour. A. M. A., April 20, 1912, p. 1195*).

Furunculosis Vaccine is a staphylococcus vaccine containing *Staphylococcus aureus*. Parke, Davis & Co., (*Jour. A. M. A., April 20, 1912, p. 1195*).

Acne Vaccine is a vaccine prepared from acne bacilli. Parke, Davis & Co., (*Jour. A. M. A., April 20, 1912, p. 1195*).

Combined Bacterial Vaccine is a vaccine containing bacteria of mixed *Streptococcus pyogenes, Staphylococcus aureus, albus and citreus, Bacillus coli communis and Diplococcus pneumoniae*. Parke, Davis & Co., (*Jour. A. M. A., April 20, 1912, p. 1195*).

Since March 26 the following articles have been accepted:

Novocain Tablets "D" (Victor Koechl & Co.)

Novocain Tablets "F" (Victor Koechl & Co.)

Novocain Suprarenin Tablets "A" (Victor Koechl & Co.)

Novocain Suprarenin Tablets "B" (Victor Koechl & Co.)

Novocain Suprarenin Tablets "C" (Victor Koechl & Co.)

Novocain Suprarenin Tablets "E" (Victor Koechl & Co.)

Proferrin (H. K. Mulford Co.)

Proferrin Tablets, 1 gr. (H. K. Mulford Co.)

Proferrin Tablets 2½ gr. (H. K. Mulford Co.)

Proferrin Tablets, 5 gr. (H. K. Mulford Co.)

Meningo-Bacterin (H. K. Mulford Co.)

Tyramine (Burroughs Wellcome & Co.)

Tuberculin-Rosenbach (Kalle & Co.)

Academy of Medicine of Cleveland.

ACADEMY MEETING.

The ninety-first regular meeting of the Academy was held at the Cleveland Medical Library, Friday, April 19, 1912, the President, J. V. Gallagher, in the chair.

The program was as follows:

1, Spontaneous Amputation of the Appendix, by N. Stone Scott. (To be published in full later). The literature dealing with cases in which at operation the appendix was found to have been spontaneously separated was reviewed and several cases were added by the author. Two groups of such cases must be recognized. In acute cases the necrotic or gangrenous inflammatory process may lead to the separation of the appendix from the cecum. The free distal portion may be found in the appendiceal abscess at the time of operation, or the tissue may be so completely destroyed that no remnant of the appendix can be found. In another group of cases the separation of the appendix is associated with chronic appendicitis and is not due to necrosis or destruction of the organ. The chronic inflammatory process leads to obliteration and atrophy of some of the tissue, so that a distal portion of the appendix of varying length may become separated from the colon. The author had seen two cases of complete amputation of this type. In one, a male aged nineteen years,

there had been mild attacks lasting for three or four years. Upon opening the abdomen there was found beyond the tip of the appendix a small structure that had the appearance of a lymph gland. This proved to be the separated distal end of the appendix. In another case, a woman of thirty-seven years, there had been chronic appendicitis of several years' duration. At operation an appendix two and one-half inches long was found free except that it was attached posteriorly by a mesentery. The cecum showed an appendix stump one-half inch long; the mesentery of this was continuous with that of the portion free of the cecum. Attention was called to the medicolegal aspect of chronic amputation of the appendix in those cases where damages are asked because a second operation for appendicitis becomes necessary after the appendix has been supposedly removed. The paper was illustrated with lantern slides.

G. W. Crile, in discussion, said that he had seen the condition described. Only the tip of the appendix was left, detached entirely from the rest of the organ and from the cecum. The vagaries of the appendix in acute appendicitis are numerous. He had seen one case in which the abscess ruptured into the bladder and the appendix was later passed with the urine.

C. A. Hamann believed that everyone has seen cases in which the appendix is wholly or partly amputated. Interesting is the question brought up as to the nature of the chronic obliterative process, whether it is a normal physiological process, or whether it is always the result of an actual inflammatory process. Recent work seems to indicate the latter, although he still thought that physiological obliteration was a possibility.

N. Stone Scott, in closing the discussion, said that it was interesting to hear that others had seen the condition described, because it was so very rare in the literature. He believed that chronic obliteration is always due to an inflammatory process.

2, *The Menace to the Public by Feeble-Minded Persons Living Outside Institutions*, by Theodore Diller, of Pittsburgh, (to be published in full later).

H. G. Sherman, in opening the discussion, reported the comparatively large number of feeble-minded and backward children which the work of the local School Inspection Department had shown to be present among the school children of Cleveland. The backward or imbecile child ought never be put with the normal child; the latter will be pulled down. The last census of Ohio showed that there are 15,000 imbeciles in Ohio; only 1,200 of these are taken care of by the State. The problem of the proper care of the imbecile is too great for the State, it must be divided with the county and the municipality. The citizens of Cleveland must be made to realize that such conditions exist. He believed that these children should be segregated, made happy and should be taught as much as possible; some can be taught to become self-supporting. He agreed with the speaker that the imbecile should not be forced upon the community. The imbecile is unmoral rather than immoral; he has no realization of the sexual act or of procreation. Cleveland should at once purchase a farm where the 420 children already known to be mentally backward could be cared for. Whether these children should be sterilized he would not attempt to argue. In the five states which permit this procedure the officials had not had the courage to carry out the law. In Ohio, when the imbecile becomes of age he may be liberated; he is freed at just the age most dangerous in so far as procreation is concerned.

A. B. Howard said that there is every reason why physicians should interest themselves in this question of the care of the imbecile. In many cases the parent or guardian insists that the imbecile child go into a factory for work as soon as it leaves school. Frequently it is found that in a single family there may be two, three or four imbecile or backward children; often the mother is defective, sometimes both parents. The

problem is so tremendous that every possible endeavor should be made to segregate or colonize the mentally deficient children from others in the public schools. This is advantageous to the defective as well as to the normal child and it is the most economical plan of caring for such children.

J. B. Stotter said that the question raised by the speaker should be entrusted only to the hands of the physician, but he doubted whether this would ever be done. There are so many chances for differences of opinion that it would be difficult to determine the mental condition of any given individual.

W. A. Searle said that the people must be made to realize what the question of imbecility means and the physician must take his prominent share in the education of the public. He believed that we should not hesitate to demand sterilization for certain classes of mental defectives, and physicians should be the ones to state which are to be segregated and which sterilized.

W. H. Tuckerman believed that there are only two courses to be pursued. Either we should let evolution take its course and let the feeble-minded die, as they would if left to themselves. Or society should prohibit the breeding and procreation of the mentally defective. There can be no middle ground.

W. B. Laffer thought that segregation is the best procedure and that sterilization without segregation would not yield the best results. Often the Probate Court does not know what to do with cases of mental deficiency brought before it. For some of the mentally deficient places might be found in families and the latter made responsible, as is done in Germany. But more important is segregation upon farms with enough manual labor to keep the unfortunates happy. It did not seem wise to spend so large an amount for education as is at present being spent by the city.

J. D. McAfee felt that physicians are themselves a trifle backward in attacking the subject of the backward child and in presenting it to the community. That the faults discussed exist cannot be denied, but they cannot be corrected because present laws are insufficient. Facts and statistics should be gathered by bureaus under medical control. With the information thus gained appeal should be made to the legislature for corrective legislation.

W. I. LeFevre called attention to the ease with which the female may be sterilized by the application of the X-ray over the regions of the ovaries.

Theodore Diller, in closing the discussion, said that he recognized the dangers and limits of sterilization. While a sterilized female imbecile is not capable of propagation she is capable of spreading venereal disease. He had, therefore, considered sterilization a secondary matter. He regretted that more had not been said in the discussion as to the propriety of the State's taking charge of all the imbeciles within its borders. This seemed to him the most essential matter and a census of such persons could be best obtained through the aid of the schools. The question of the care of the feeble-minded is a state one, not a municipal one. He hoped that measures will be taken to present the matter to the legislature of Ohio.

3, Principles and Practice of Spondylotherapy, by Albert Abrams, of San Francisco. The speaker dealt chiefly with references to matters found in his book, "The Principles and Practice of Spondylotherapy." Some quite remarkable cures said to have been obtained in the treatment of aortic aneurism by the author's method were reported and even more wonderful results were claimed for exophthalmic goiter.

Discussion was by R. K. Updegraff, N. Rosewater and E. A. Powell. Upon the conclusion of the regular program W. B. Laffer made a

motion that the Chair appoint a committee of five to study the question of the imbecile and backward child and to take up the subject in the meeting of the State Association. The President appointed the following: W. B. Laffer, E. P. Carter, J. D. McAfee, F. W. Davis and N. Rosewater.

EXPERIMENTAL MEDICINE SECTION.

The sixty-second regular meeting of this Section was held in conjunction with the Alpha Omega Alpha Fraternity, Friday, April 12, 1912, the Chairman of the Section, F. C. Waite, in the chair.

The program was an address upon The Leishman-Donovan Bodies, by F. G. Novy, Sc. D., M. D., Professor of Bacteriology in the University of Michigan.

These parasites were first described by Leishman in 1904 in a chronic, febrile, malaria-like, cachetic disease, endemic in India and other parts of Asia and in northern Africa, known as kala-azar. During the same year they were seen also by Donovan, who described the infection as a human piroplasmiasis. In 1903 Wright had described and pictured similar bodies in preparations from an individual with Delhi sore, who had recently come to this country. During the same year as that in which the parasites were described by Leishman and Donovan, Rogers proved their dissimilarity with *Piroplasma* by the developmental stages which occurred in human blood prevented from clotting. In 1908 Nicolle described structures morphologically similar in the infantile splenomegaly of northern Africa and southern Italy; this species occurs also in the dog. During the same year Darling encountered somewhat similar parasites in the Panama Canal Zone.

The morphology and development of the bodies were illustrated with a large and excellent series of lantern slides. In smears from the spleen the parasites appear as small round bodies with at one side a larger, often crescentic nucleus and at the other side a smaller, denser nucleus. They are usually intracellular, occurring in largest numbers in large endothelial cells. The infantile splenomegaly parasite, which is transmissible to the dog and can be grown in the rabbit's blood agar devised by the speaker for the cultivation of trypanosomes, has been most completely studied. Upon this medium the body elongates, becomes somewhat spindle shaped, develops an anterior flagellum and becomes actively motile. The smaller nucleus takes an anterior position, near the root of the flagellum. The morphological similarity of these stages with *Trypanosoma lewisi* was illustrated. Division occurs by longitudinal binary fission and by multiple fission.

The mode of transmission has not been definitely established. Several species of blood-sucking insects have been held responsible, but because of the close resemblance of the developmental forms to the *Herpetomonas* and *Crithidia* parasites naturally present in the intestinal tracts of insects, it has been difficult to bring forward satisfactory evidence of development and sexual multiplication within the suspected insects.

W. T. Howard, in discussion, called attention to the distribution of the parasites and to the knowledge of their structure which has been gained through the use of the methods which the speaker had first applied in the cultivation of trypanosomes.

R. G. Perkins asked in regard to the production of experimental infection by means of intermediate hosts, whether the speaker had ever been able to transmit the infection from one dog to another by means of insects.

F. G. Novy, in closing, said that his own work had been entirely with cultures and with direct inoculations. He felt that the investigation of a possible cycle in the insect was a difficult problem because so many insects,

as he had already pointed out, in working with trypanosomes, naturally harbor flagellated parasites not to be distinguished from the cultural forms of the Leishman-Donovan bodies.

CLINICAL AND PATHOLOGICAL SECTION.

The eighty-fifth regular meeting of this Section was held at the Cleveland Medical Library, Friday, April 5, 1912, the Chairman, H. L. Sanford, in the chair.

J. J. Thomas presented a case of "cloven hoof." The child, a girl now four months old, had been brought to St. Ann's Hospital about six weeks ago. The mother says that the father has the same deformity of the feet. Each foot has only two toes; the left foot possibly has three metatarsals. There is an absence of the first and second fingers on each hand, and on the right hand the third and fourth fingers are webbed. The child had been starved by the parents with the hope that it would die; since it has been in the hospital it has done well.

W. B. Chamberlin presented two cases in which nasal deformity had been corrected by cold paraffin and demonstrated the syringe which he had found best. He said that he knew of no ill results from the use of cold paraffin. Such bad results as had been reported were from the use of hot paraffin. Cold paraffin may be used for the correction of any deformity which can be reached by the needle.

The regular program was as follows:

1, The Use of Forceps in Vertex Occipitoposterior Positions, by A. H. Bill. (To be published later). Further experience with the Scanzoni manoeuvre in eighty-two cases of vertex occipitoposterior position had only served to confirm the speaker's belief in the value of the procedure, expressed in an earlier paper before the Academy. Upon only one point had he found it necessary to alter his former practice. It is now his plan to rotate before any traction is made, no matter what the position of the head may be. Success in the use of the Scanzoni manoeuvre is dependent upon the following of a definite technic. Most important is a correct diagnosis of the position. In the first application of the forceps the blades are applied flat against the sides of the head, the pelvic curve being toward the child's face. After locking the blades rotation is performed by swinging the handles through a large circle; little force is needed at this stage and if resistance is met the head should be pushed higher. After rotation the forceps are removed and reapplied as for any anterior position, the posterior blade being applied first. The Scanzoni manoeuvre makes the management of posterior positions easy, since it transforms an abnormal into a normal position. The danger to the mother or the child is slight if the operator uses the proper technic.

H. H. Powell, in discussion, asked whether the speaker ever applied the forceps for the purpose of rotation before the head is fixed at the brim of the pelvis and whether the attempt is made to rotate as soon as the diagnosis of occipitoposterior position is made. Up to ten years ago it was considered bad practice to attempt to rotate the head with forceps. During the past ten years it has become the practice of obstetricians to perform rotation with the forceps, even when the head is higher than the brim. The procedure requires skill, however, and unless the practitioner has such skill turning had better be tried. A fair per cent of occipitoposterior positions will rotate after the head reaches the perineum. He would advise all who are in the habit of using forceps to attempt the Scanzoni manoeuvre when the proper case presents, but would not advise the average man to attempt the manoeuvre in cases requiring high application of the forceps. The Scanzoni manoeuvre is an admirable procedure, but should be used only by those who have skill in the use of forceps.

E. O. Houck said that he had decided views as to the treatment of occipitoposterior presentations and that he must take exception to some of the views expressed. As a general rule he believed that in occipitoposterior positions the forceps should not be used. Labor should be permitted to go on, since most cases rotate spontaneously; even if they do not, the forceps can be more easily applied when the head is low down in the perineum. He believed that most occipitoposterior presentations should be left alone when the correct diagnosis is made. A point as to the diagnosis is that in most cases a long labor alone means an occipitoposterior position.

A. J. Skeel asked as to the reason for the rule of making rotation before traction and as to the per cent of occipitoposterior presentations which require forceps. He agreed with H. H. Powell in the statement that the application of forceps in such cases is dangerous in the hands of him who is not expert in the use of forceps.

A. H. Bill, in closing the discussion, said that he wished to correct the impression that he advised rotation as soon as the diagnosis is made. In his paper he had considered only those cases in which forceps are necessary; he did not think it necessary to discuss the indications for forceps in general or in occipitoposterior positions in particular. He agreed that in the majority of cases spontaneous rotation occurs. In many of the eighty-two cases included in his report forceps had been tried by others and traction had had no effect because of the position. In such cases it seemed ridiculous to advise waiting. He could see no reason for the practice of obstetrics unless the obstetrician is able to help out and to correct abnormalities. He did not feel that forceps with a pelvic curve offer any obstacle, if it is remembered that the blades must be kept in the same axis during rotation by swinging the handles through a large circle; this is the important point in the manoeuvre. Application of the forceps in occipitoposterior positions is easy, easier than in transverse positions. The application may be made before the head is fixed at the brim, provided the cervix is thoroughly dilated. The reasons for rotating without traction are that the head rotates more easily without traction, the position is not favorable to traction and traction alone avails nothing. Often, to help in performing rotation, it is advantageous to push the head back before rotating rather than to make traction as soon as rotation is attempted.

2, Syphilis in Pregnancy, by W. T. Miller, Jr. (To be published in full later).

A. H. Bill, in discussion, said that cases of the greatest interest are those in which a dead syphilitic fetus is born of a mother who has never shown any evidence of the disease. Recent work seemed to indicate that such women are themselves actually syphilitic, but it is difficult to see why they do not, either during the period of pregnancy or later, show manifestations of lues.

J. J. Thomas believed that Colles' law, as originally stated, still holds. Certainly in the majority of cases the mothers of syphilitic children have no evidences of the disease.

W. T. Miller, Jr., said that the apparent freedom of lues upon the part of mothers of syphilitic children did not hold in every case. He had seen two cases in which the birth of syphilitic children was followed by the appearance of the lesions of the disease.

3, The Prevention and Treatment of Eclampsia, by A. J. Skeel, (appearing in full on page 346).

H. H. Powell, in opening the discussion, said that we know less about eclampsia than of any other medical problem. The etiology, pathology and treatment are little understood and indefinite. Because we know so little of the real causes of the condition the treatment must be largely symptomatic. He agreed fully that the delivery should be as

speedy as possible when once it becomes necessary to induce labor. The method of producing prompt delivery should be such as would least endanger the mother.

E. O. Houck said that it was important to know what to do if the patient is seen for the first time in convulsions. He believed that in such cases chloroform may be used to control the first convulsion; whether it ought to be used for the control of later, repeated convulsions is questionable. The uterus ought to be emptied as a general rule, but this should not be a hard and fast rule, since some cases go to spontaneous delivery even after convulsions.

J. L. Bubis said that morphin must be used with care, especially if larger doses are employed. He considered oxygen during the convulsions preferable to chloroform or any hypnotic.

A. H. Bill agreed with the statement that chloroform should not be used; he prefers ether even in normal cases. While we have made little progress in the medical treatment of eclampsia, there has been a change of opinion in regard to the method of delivery. Perhaps the pendulum has swung too far when Cæsarian section is advised in every case and even in the preeclamptic stage. In induced labor the labor should be made as easy as possible, particularly by eliminating the second stage. Perhaps Cæsarian section is the best procedure when severe convulsions have already occurred.

H. L. Sanford said that the question as to how much the kidney efficiency is decreased in eclampsia is interesting; valuable data might be obtained by testing the renal efficiency in eclamptics by means of the phthalein test.

A. J. Skeel, in closing the discussion, said that chloroform seems inefficient in controlling the convulsions of eclampsia, because by the time the breathing becomes slow and deep enough to be valuable the convulsion is over. The possibility of damage to the liver is also against the use of chloroform. In the induction of labor he believed manual dilatation inadvisable because it prolongs the labor too extremely.

4, The Prognostic Value of the Leucocyte Count in Pelvic Suppurative Conditions, by J. T. Smith, Jr. There were presented statistics based upon a study of the records of one hundred cases of pus in the pelvis, due to a variety of causes, the operation being performed after the subsidence of the acute stage. The average preoperative count was 16,200, the highest being 38,000, the lowest 5,700. The question that it was attempted to determine was as to the relative value of the leucocyte count and the temperature before operation if the two tell different stories—if the former is high and the latter low. The leucocyte counts, although they were found to be rather erratic, were found to be of markedly more prognostic value than the temperature before operation.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The fifty-ninth regular meeting of this Section was held at the Cleveland Medical Library, Friday, April 26, 1912, the Chairman, W. E. Bruner, in the chair.

J. E. Cogan presented a boy who had been struck over the bridge of the nose by the fragment of an exploding torpedo. There was apparently no penetrating wound of the eye and no direct injury of the eye. The boy is now blind in the right eye. There is marked detachment of the retina. The iris is enlarged, the sphincter probably torn.

The regular program was as follows:

1, Reports and Presentation of Cases of Glaucoma:

J. E. Cogan's case was a woman who shows marked cupping of the optic discs. The condition is probably congenital and is not associated with an increase in tension; it is seemingly not glaucoma.

I. A. Tripp presented a patient, a male aged forty-six years, whose trouble began two and one-half years ago with misty vision and transitory slight sensations of color. There was no pain. Various glasses were tried, but with poor results. Examination shows the media to be clear, the discs rounded, deeply cupped and grey. By the tonometer the tension of the right eye was found to be forty-five millimeters, that of the left eye fifty-five millimeters. The perimeter fields show concentric contraction, especially of the red and green. Vision has been becoming gradually worse and is now: right eye, 6-9, left eye, 6-60. The diagnosis is simple glaucoma.

W. P. Chamberlain's case was a woman forty-five years old, who complained of difficulty in doing close work. Vision, which has been failing for six months, is now: right eye, 6-60; left eye, 6-30. There has been no pain and no color sensations. The ophthalmoscopic examination shows nothing abnormal except the cupping of the discs. Tension is normal to the touch; with the tonometer it is twenty-three millimeters. There is a contraction of all fields on the nasal side. There is some trouble in distinguishing colors. The diagnosis is simple glaucoma, without increased tension.

Edward Lauder, in discussion, said that at the present time he had two cases of glaucoma under observation at the City Hospital. One is a chronic case, of about one year's duration, with all the manifestations of chronic glaucoma. The other, a case of acute glaucoma, is a woman who was at The Lakeside Hospital with an absolute glaucoma of the right eye. When first seen recently she had glaucoma of the left eye of three days' duration. The treatment had consisted of alternating weekly periods of pilocarpin and eserine; the latter has seemed to give the better results. The possibility of operative treatment by means of the ocular trephine was mentioned.

C. C. Stuart said that, because by the treatment with continuous instillations of eserine one is apt to lose the patient, it is often difficult to decide whether such mild treatment or operative treatment is better.

S. H. Monson has found the vision improved by eserine, but the difficulty with the mild treatment is that it is not kept up.

W. E. Bruner believed that the treatment must be influenced by the patient. If the latter will follow out the eserine treatment this should be tried. If the patient will not follow it out properly it may be best for him that an iridectomy be done. In any case, if the tension remains much above normal in spite of eserine, operation may be best to prevent further deterioration of sight. In the English literature there are many favorable results of the trephining operation.

R. B. Metz said that there is no definite rule which will distinguish between congenital and pathological cupping of the discs. Suspected cases of the former must be watched for deterioration of vision.

W. C. Tuckerman thought that cases of suspected anatomical cupping should be tested with the tonometer. In such cases fluctuations of tension would be important, since it seems to have been determined that fluctuations of tension do not occur in the normal eye.

2, Nasal Headaches, by D. A. Prendergast. (To be published in full later). In several cases the correction of refractive errors had not been followed by a disappearance of the headaches of which the patients had complained. In these cases nasal obstruction, due to a variety of causes, was found to be present. Removal of the obstruction resulted in relief from the headaches. It would appear that nasal troubles may be the cause of persistent headache and in every case in which the correction of errors of refraction is not followed by relief the nose should be examined.

Edward Lauder agreed that in some cases all that can be done for the eyes will not relieve headaches and that in such cases search should be

made for nasal trouble. Especially if the headaches occur in the morning, and if gastric indiscretions can be excluded, nasal trouble should be suspected.

W. H. Tuckerman said that in some cases nasal obstruction may be difficult to detect. Later examination when the nose is congested may show that pressure and obstruction sufficient to produce headache exist. He could not agree that chronic sinusitis is always easy of detection. A point in regard to sinus headaches is that the pain is apt to be lateralized but not necessarily localized over the cavity involved.

J. M. Ingersoll agreed that sinus trouble may be difficult to recognize. The nose may be normal in appearance, with plenty of space and free of pus, and yet a sinus may be involved.

W. C. Tuckerman recalled a case of orbital cellulitis in which there was no history of injury. The patient had had the head type of influenza. Treatment of the nose was followed by improvement in the condition of the eye. In another case in which the patient complained of headaches eye examination showed little; the use of adrenalin in the nose caused an immediate disappearance of the headache. It is well to examine the nose in all cases in which refraction is not followed by relief.

J. E. Cogan felt that acute sinusitis is easy to diagnose, the chronic form difficult. He believed that headaches which were not cleared up by steam inhalations could not be nasal in origin.

C. C. Stuart said that, while it is believed that morning headache is nasal, it must not be forgotten that a morning headache may be ocular if the eyes have been excessively used and strained the day before.

D. A. Prendergast, in closing, said that he did not wish it understood that he maintained that morning headache is always nasal. Morning headache may be both nasal and ocular, and undoubtedly it may be due to errors of refraction alone.

3, Exophoria, by Edward Lauder. There was reported a case in which repeated partial tenotomy had only temporary effect. A woman, aged forty-six years, complaining of eye strain, was first seen last November. There was exophoria of 12° . By January 4 this had increased to 22° . Four days later partial tenotomy was done. On January 15 the exophoria was 8° and five days later it had increased to 15° . A second partial tenotomy on February 2 reduced the exophoria to 10° , but a few days later it returned to over 12° . Complete tenotomy of the right external rectus on March 5 was followed by orthophoria, but some days later exophoria of 12° was again present. On April 5 another complete tenotomy of the right external rectus was performed; at this time there was found an attachment of the external rectus posterior to the equator; this was not due to scar tissue. This operation was followed by isophoria of 12° . This gradually disappeared and at the time of the report the patient had orthophoria. The patient claims that she has had more relief since the last operation than ever before. In another case, a woman of fifty-five years, there was exophoria of 8° for distant vision and 22° for near vision. In exophoria prisms are always to be tried first. But in such cases as the last reported the duction power of the muscles cannot be increased by prisms and operation is advisable.

Leo Wolfenstein asked as to the testing of latent exophoria.

Edward Lauder replied that it can be measured only by prisms. He believed that more regard must be given to balance for distance than to balance for accommodation.

4, Exhibition of Roentgen Plates in a Series of Cases of Hereditary Optic Atrophy, by W. E. Bruner. X-ray plates from the case of hereditary optic atrophy previously reported to the Section were shown. The plates from the patient show an unusually large sphenoidal cell. A sister and a nephew, both of whom have the disease, show the same condition. One sister who has no ocular involvement also has rather large sphenoidal

noidal cells. The mother, who is normal, shows no enlargement of the cells. In a series of normal persons examined for comparison the cells, with one exception, were in general smaller than those of the patient and of the members of his family.

COUNCIL MEETING.

The Council met April 10, 1912, the President, J. V. Gallagher, in the chair.

C. E. Ford suggested as members of the Legislative Committee R. E. Skeel and Benjamin Gage, and asked permission to hold the other two places open to provide for special appointments if such should be needed for a special purpose. The recommendations were approved.

The applications of Reed Anderson and H. Spitzer for active membership were laid upon the table. E. C. Horne and E. C. Rice were elected to active membership. T. Bernard Tanner was elected to associate membership in the Pharmaceutical Section. George J. Weitz of Booneville, Missouri, was transferred to nonresident membership. Henry O. Feiss, Alfred I. Ludlow and H. C. Mabley were transferred to the nonactive list because of absence from the city.

A resolution upon the death of Gustav C. E. Weber was read and adopted (published on page 314 of the April issue).

The Chairman of the Membership Committee was directed to announce the deaths of members from the floor of the Academy at the meeting following such deaths.

The question previously asked concerning a ruling of the Board of Health in regard to milk shipments was satisfactorily explained by C. E. Ford, who showed that there had been no discrimination against the dealers.

A communication from Pearson's magazine was laid upon the table.

In reply to a communication from J. C. Wood it was the sense of the Council that the medical profession should not ask for special legislation exempting physicians from the time limit law relative to automobiles.

The Secretary was directed to publish on plain paper extra copies of Section programs when such are requested by the Chairmen.

The following were appointed delegates to the meeting of the Ohio State Medical Association: C. B. Parker, F. W. Davis, R. K. Updegraff, H. L. Sanford and J. E. Tuckerman. The Secretary was empowered to appoint alternates at the time of the meeting.

Book Reviews.

The Practical Medicine Series: Series 1912, Volume I. General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A. M., M. D., Professor of Medicine, Chicago Clinical School. Cloth, 404 pages, with two figures and ten plates, \$1.50. Price of the series of ten volumes \$10.00. The Year Book Publishers, Chicago.

This book, as the publishers point out, is "one of a series of ten issued at about monthly intervals and covering the entire field of medicine and surgery, each volume being complete for the year prior to its publication, on the subject of which it treats." The volume deals with subjects in internal medicine, arranged systematically under the headings of infectious diseases and diseases of the various organs. The consensus of recent opinion on all subjects is indicated by the writers and there are quotations from about 250 other authors.

A few well selected case reports are included, usually illustrative of some important fact, such as a case of influenza, which pathologically as well as clinically very closely simulated tuberculosis. Much information is given in the form of summaries and classifications, such as the classification of the anemias into the orthoplastic, metaplastic and aplastic types. The book is practical and fairly comprehensive, with due attention to treatment. The language is clear and concise, and altogether the book affords an admirable resume of the year's literature.

V. C. R.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. Volume XIV, No. 1. Whole No. 53. Volume I, March, 1912. Lea and Febiger, Philadelphia and New York.

This volume is a digest of the literature relating to the Surgery of the Head, Neck and Thorax; Infectious Diseases; Diseases of Children; Rhinology, Laryngology and Otology. The same authors are continued from year to year, which makes the work more valuable. One naturally would have expected that Doctor Frazier, in speaking of lumbar puncture in relation to the diagnosis of diseases of the nervous system, would have dealt at considerable length with the recent valuable studies of Mott and others instead of alluding simply to certain well-known dangers. In his discussion of the thyroid gland the same writer shows a tendency to discredit any opinion which seems to be adverse to the usual surgical viewpoint. In the section on Infectious Diseases a very full report is given of the experimental production of measles in the monkey. Altogether the volume is a very good, though not an exhaustive, review of current literature.

J. P.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. Cloth, 654 pages, 113 figures, 36 plates, \$3.50. E. B. Treat & Company, 409-411 Benezet Building, New York.

This thirtieth edition of the Medical Annual gives an excellent review of the recent advances in medical literature, filtered from extraneous matter, carefully digested, submitted to criticism, and so arranged that it is immediately available for reference. The therapeutic review is very thorough. The chapter on Salvarsan might be taken as an excellent example of the character of this summary of medical literature. This Annual merits a large circulation.

J. P.

Acknowledgments.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., and F. F. Burghard, M. S. (Lond.), F. R. C. S. Volume II: The Treatment of the Surgical Affections of the Skin and Subcutaneous Tissues, the Nails, the Lymphatic Glands and Vessels, the Muscles, the Tendons and Tendon-sheaths, the Nerves, the Veins, the Arteries, and the Bones: Amputations. Cloth, pp. xxviii and 570, 252 figures, 4 plates. Lea & Febiger, Philadelphia and New York, 1912.

Compendium of Diseases of the Skin. Based on an Analysis of Thirty Thousand Consecutive Cases. With a Therapeutic Formulary. By L. Duncan Bulkley, A. M., M. D. Fifth Revised Edition. Cloth, octavo, pp. xi and 286, \$2.00. Paul B. Hoeber, New York, 1912.

A Manual of Clinical Chemistry, Microscopy and Bacteriology. By Dr. M. Klopstock and Dr. A. Kowarsky. Only Authorized Translation from the Last German Edition, Thoroughly Revised and Enlarged. Cloth, pp. xii and 371, 43 figures and 16 colored plates, \$3.00. Rebman Company, New York, 1912.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I, Number 2, April, 1912. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

Tumors of the Jaws. By Charles L. Scudder, M. D., Surgeon to the Massachusetts General Hospital. Octavo of 391 pages, with 353 illustrations, 6 in colors. Cloth, \$6.00 net; half morocco, \$7.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

Cyclopedia of American Medical Biography. By Howard A. Kelley, M. D., Professor of Gynecological Surgery at Johns Hopkins University, Baltimore. Two octavo volumes, averaging 525 pages each, with portraits. Per set: Cloth, \$10.00 net; half morocco, \$13.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Duodenal Ulcer. By B. G. A. Moynihan, M. S. (London), F. R. C. S., Senior Assistant Surgeon at Leeds General Infirmary, England. Second edition, enlarged. Octavo of 486 pages, illustrated. Cloth, \$5.00 net; half morocco, \$6.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

Pellagra, An American Problem. By George M. Niles, M. D., Professor of Gastro-enterology and Therapeutics in the Atlanta School of Medicine, Atlanta, Georgia. Octavo of 253 pages, illustrated. Cloth, \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Diseases of the Genito-Urinary Organs and the Kidney. By Robert H. Green, M. D., Professor of Genito-Urinary Surgery at the Fordham University, New York; and Harlow Brooks, M. D., Assistant Professor of Clinical Medicine, University and Bellevue Medical College, New York. Third revised edition. Octavo of 639 pages, 339 illustrations. Cloth, \$5.00 net; half morocco, \$6.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

The Care of the Insane and Hospital Management. By Charles Whitney Page, M. D. Cloth, 155 pages, \$1.00. W. M. Leonard, Boston, 1912.

Memorial Meeting for Gustav C. E. Weber.

On Thursday, May 2, 1912, a memorial meeting in honor of Gustav C. E. Weber was held under the auspices of the Cleveland Medical Library Association in the auditorium of the Library. C. B. Parker, president of the Cleveland Medical Library Association, was in the chair.

C. B. Parker, in opening the meeting, called attention to Doctor Weber's relation to the Association. His membership in the Association was the last tie with the medical profession, and after his retirement he gave to the Library all his books and instruments. Doctor Weber's presence and personality in the sick room, his ability as a teacher, his success as an operator and the ripened philosophy of his late years were recalled by the speaker. One of his greatest benefits to the profession was his work as a clinical teacher of surgery; it was through his recognition of the value of clinical teaching that the Charity Hospital Medical College, in close association with a hospital, was founded. And it was through his efforts that \$200,000 was secured for medical teaching in Cleveland, a sum greater than the entire total which had previously been given for this purpose. His success as an operator was marvelous, when one remembers that much of his work was done in preantiseptic days. His

personal charm and magnetism were wonderful; the relation of many members of the profession to him was that existing between a father and his sons. His insight into and judgment of his colleagues are illustrated by the later success of those whom he gathered about himself in the medical school he founded. As a representative of the men thus singled out, one who was asked to share in the upbuilding of the school but was unable to associate himself, the Chairman presented Martin Stamm of Fremont.

Martin Stamm said that his acquaintance with Doctor Weber dated from 1876. He learned to know him well and became a frequent visitor in his home. He gave an intimate portrayal of the training and philosophy that were the foundations of Doctor Weber's life (Doctor Stamm's remarks are to be published in full later).

The Chairman next presented John H. Lowman as one who was close to Doctor Weber and was a member of his medical family. (Doctor Lowman's appreciation appeared on page 263 of the April issue).

Representative of that great class, the public, whom Doctor Weber served so well and so long, the Chairman introduced Mr. Martin Marks, who spoke more particularly of Doctor Weber's relation to his patients, of his remarkable power and control over them and of the judgment and sympathy which formed so large a part of his actions and had such an assuring effect upon all with whom he came in contact.

H. F. Biggar, Sr., was next presented as a practitioner contemporary with Doctor Weber. Doctor Biggar spoke of the fairness and skill which characterized Doctor Weber as a consultant, and of the impression he made upon the patient, upon the members of the family and upon those medical men whom he met professionally.

A letter from the Sisters of Charity of St. Vincent's Charity Hospital was read.

To investigate the question of a permanent memorial to Doctor Weber the Chairman announced the following committee: John H. Asplin, W. T. Corlett, M. D., G. W. Crile, M. D., J. H. Dempsey, W. Gehring, C. A. Graselli, Louis Hayes, Siegmund Joseph, Malcolm McBride, George McIntosh, W. G. Mather, Harry Meyers, H. G. Sherman, M. D., F. A. Sterling, D. R. Taylor, J. J. Thomas, M. D., Thomas H. Wilson, L. J. Wolf and J. B. Zerbe.

Minute of the Medical Faculty of Western Reserve University Upon the Death of Gustav C. E. Weber.

At its meeting of May 3, 1912, the Faculty of the Medical Department of Western Reserve University passed the following minute regarding Gustav C. E. Weber, formerly Professor of Surgery, and Dean of that Faculty:

Although Doctor Weber withdrew himself from the active life of surgery and teaching for fifteen years before his death, he was still vividly present to a large part of the community by the work he had done. He practiced and taught surgery for forty years, twenty-four of which were with this faculty. No one more than he has been impressed with the importance of this branch of medicine and of the great necessity of a long and careful preparation for the surgeon. It might almost be said that he was too insistent on this and demanded more of the students than the country was able to give. His medical ideals were very lofty and his plan of life and duty, his very bearing and manner of life were built up about these ideals. From boyhood up to manhood he was constantly with men of the highest attainments and gained from them the most definite views of medicine as a science. These views were never relinquished by him but rather grew and strengthened with his years. His concep-

tion of the physician or surgeon was somewhat ecclesiastical, a priest of the order scientific, a being whose work was certainly equal and probably superior to its rewards.

It was this identification of himself with his calling and his honoring the office that was one of the mysteries about him and made him sometimes difficult to understand. At the same time this very characteristic so dignified his profession that surgery is on a higher plane today in Cleveland than it ever would have been had it not been sustained by such a professional idealistic protagonist.

He founded the first medical journal in Cleveland; he was a conscientious practitioner and teacher of surgery for years among us; he suggested, inspired and aided the building of Charity Hospital and, by means of his patients, practically supported it for years; he organized an independent medical school and directed its policy for sixteen years until it was affiliated with our faculty; he inspired, indirectly at least, through the affection of Mr. Wood for him, the first large benefaction to medical science in Cleveland.

For these things he will live in our local annals, and for them and for himself, we are glad to spread on our minutes our appreciation of him.

Medical News.

Army Medical Corps Examinations: The Surgeon General of the Army announces that preliminary examinations for the appointment of first lieutenants in the Army Medical Corps will be held on July 15, 1912, and September 3, 1912, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training, after graduation. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be complete and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present sixty-eight vacancies in the Medical Corps of the Army.

The Ohio State Medical Association, at the annual meeting held at Dayton, May 7, 8 and 9, elected the following officers: President, J. C. M. Floyd, Steubenville; Vice Presidents, H. Fischer, Lebanon; H. R. Brown, Chillicothe; J. S. Rardin, Portsmouth, and J. B. May, New Holland; Secretary, J. H. J. Upham, Columbus; Treasurer, C. D. Selby, Toledo; Counselors, C. N. Smith, Toledo, and J. E. Sylvester, Wellston; Delegates to the American Medical Association, C. L. Bonifield, Cincinnati; A. Rhu, Marion, and H. C. Haning, Dayton; Member of the National Legislative Council, B. R. McClellan, Xenia. Youngstown was selected as the next place of meeting.

Resolutions were adopted condemnatory of the Secretary of Agriculture and deploring the conditions which led to the resignation of Harvey W. Wiley.

The Ohio Society for the Prevention of Tuberculosis, at its meeting held at Dayton, May 6, elected the following officers: President, Henry Baldwin, Springfield; Vice Presidents, Samuel Iglauer, Cincinnati, and Frank Warner, Columbus; Directors, C. E. Ford, Cleveland, and Esther Tyrrell, Canton.

The Wyandot County Medical Society, at its meeting at Upper Sandusky, May 3, re-elected the following: President, I. N. Bowan; Secretary-Treasurer, Frederick Kenan.

P. F. Southwick was elected President of the Erie County Medical Society in place of M. J. Love, resigned, at a meeting held at Sandusky, March 27.

Stark County Medical Society: The 131st regular meeting, held at Canton, May 21, consisted of a symposium on obstetrics. The program was as follows: 1, Pathological Labor Due to Abnormal Conditions of the Fetus and Mother, by J. B. Dougherty, New Berlin. 2, Obstetric Surgery: A, Operations Preparatory to Delivery, N. W. Culbertson, Massillon; B, Operations for Delivery, E. J. March, Canton.

The Lakeside Hospital Medical Society: The program of the sixtieth regular meeting, held Wednesday, April 24, was as follows: 1, Presentation of a Case of Carcinoma of the Larynx, by W. B. Rogers. 2, Presentation of Two Cases of Infectious Meningitis, by H. L. Taylor and T. S. Keyser. 3, Presentation of a Case of Syringomyelia, by C. B. Craig. 4, Presentation of Pathological Specimens, by H. O. Ruh.

Charity Hospital Medical Society: At the meeting held Wednesday, May 15, the program was as follows: 1, Presentation of House Cases, by Doctors Graham, Brickman and Hodgson. 2, Presentation of Cases, by W. H. Merriam. 3, Postgraduate Courses in Eastern Clinics, by E. O. Houck.

Samuel J. Kapetsky of New York, under the auspices of the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, gave a talk upon Recent Advances in Otology and held a clinic at Charity Hospital on Monday, May 6.

Money for District Nursing in Toledo: Up to May 1 almost \$12,000 had been collected for the work of the District Nurses' Association of Toledo.

The Clark County Medical Society, at a meeting held on April 28, adopted stringent rules in regard to unprofessional conduct, contract practice and fee splitting.

W. H. Buechner, Youngstown, has been selected as the representative of the Medical Staff of the City Hospital on the building committee for the proposed additions to the hospital.

Professor Carl von Noorden of Vienna has accepted an invitation of the Post-Graduate Medical School and Hospital of New York City for a series of lectures on problems of metabolism in October.

Deaths.

James A. Monahan died at Coolville, February 24, aged 86.

James Dwight Bemis died at Fremont, April 13, aged 52.

Mary Jane Booth died at Cincinnati, April 9, aged 68.

Calvin Pancoast Gailey died at Marion, April 9, aged 66.

James Henry Dye died at Cleveland, April 17, aged 60.

Thomas P. Shields died at Watkins, April 10, aged 86.

Thomas Harris Stewart died at Salem, April 22, aged 71.

Jacob Franklin Hudson died at Canton, April 24, aged 59.

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Paget's Osteitis Deformans.

By W. B. LAFFER, M. D., Cleveland.

The bones of prehistoric man show the disease which Paget termed Osteitis Deformans. Animals have a similar trouble. Clopton found seventy-five cases reported up to 1906.

Paget called the condition "Chronic Inflammation of the Bones" with the subtitle of "Osteitis Deformans". His description, which is yet good, was as follows: "Most characteristic are the stooping posture, round shoulders with head forward and chest raised as if to clear the sternum, loss of height, chest sunken toward the pelvis, pendulous abdomen, legs curved and held apart. Knees slightly bent, the ankles overhung by the legs and the toes turned out. The enlarged cranium square looking or bossed may add distinctiveness to these characteristics and they are completed in the slow awkward gait and in the shallow costal breathing which is compensated by the wide movements of the diaphragm and abdominal wall and marked uplifting of the shoulders."

Others in describing the posture have called attention to the short neck bent forward, as if coming out from between the shoulders, with the chin almost resting on the sternum. The spine shows a curvature forward. "Thorax short and seems to be pushed into the abdomen like an opera glass." There is respiratory distress. The arms are too long and are often deformed. The iliac crests are often hypertrophied, so that the hip bones assume the form of a vase which receives into its opening the thorax, which is too small

Presented at the meeting of the Clinical and Pathological Section of the Academy of Medicine of Cleveland, Friday, May 3, 1912.

to fill the aperture. The legs are crooked, curving in the form of two bows in opposite directions. The gait is often waddling or with a wide base and short steps, having often spastic features. The patients have noticed increasing difficulty in getting hats large enough, or skirts or trousers formerly worn are now too long. So noticeable is the loss of stature that one child said, "Grandmother you are shrinking."

The head is not always affected. There may be involvement only of the head, or involvement of only one or two bones, usually the long bones. The arms are less affected than the legs and appear too long.

The cranium is large and oval shaped with the broadest end up and often presents inequalities upon its surface. The thickening of the skull is concentric with the deposit of new bone on the outer table, so that there is no compression of the brain as there is no encroachment upon the capacity of the skull, although Paget thought the brain was compressed. The sutures are obliterated and the Haversian canals are often effaced. In the early stages the calvarium may be cut with a knife or compressed between the fingers. It is very vascular and later undergoes defective ossification. It is said that the new bone is not deposited in the same way as in rickets. In osteitis deformans it is deposited on the convex surface and in rickets on the concave surface. The origin of bone is thought by some to be from periosteum; others maintain it comes from medulla.

The long bones of the extremities, the clavicles, the patellae, vertebrae, and skull are most often affected. Frequently there are nodes and exostoses. Involvement of the bones is usually symmetrical and the swellings are often painful. The trouble affects both sexes and usually begins in middle life, but cases occurring at the ages of 16, 21, and 35 years are reported. The patients often complain of rheumatic pains.

Paget thought the disease was a chronic inflammation of the bones with rarefying processes. The bones show a mixture of rarefying and condensing osteitis. The architectural structure of the whole bone is changed, often with new bone formation. There may be an increase in the organic elements and a decrease in the mineral salts, or the reverse of this. Absorption of the compact substance causes enlarge-

ment and confluence of the Haversian canals. There is a formation of new bone which runs diffusely through the affected and the adjacent healthy part. This new bone remains uncalcified and is in turn reabsorbed. There is a conversion of the medullary substance into a vascular connective tissue containing fat cells, giant cells and leucocytes. These three processes lead to a destruction of the relation between the compact substance and the medulla. The bones become thickened and asymmetrical, but since the new bone tissue is usually not calcified the elasticity permits of great deformity of the long bones from the weight of body, etc., with no tendency to fractures.

There is an intimate relation between osteitis deformans, hyperostosis cranii or leontiasis ossea and arthritis deformans. Many think them the same disease with different manifestations. Some cases of hyperostosis cranii have been later shown to be identical with osteitis deformans and the reverse is true. Ziegler and others believed osteitis deformans to be a form of arthritis deformans and the joint changes are practically alike in the two conditions.

The etiology of the disease is not known. Many cases have been thought to be syphilitic and have been reported as cured with antisiphilitic remedies. Others have thought the arterial changes in the nutrient arteries of the bones were the cause. Disease of the heart, aorta, and peripheral arteries is frequently seen in this condition. Still others think a neuritis of the nutrient nerves for the bones is the cause. Many writers think osteitis deformans, hyperostosis cranii and arthritis deformans are all trophic disturbances similar to the lesions of bones and joints seen in tabes and syringomyelia. Of eight cases carefully examined for changes in the nervous system, six showed pronounced changes in the nerve tissue. As we do not know where the trophic cells for bones are located we cannot closely connect cause and effect. Heredity exercises some influence as there are ten or more instances where more than one member of a family were affected.

Many cases including our own have shown pronounced mental changes, loss of memory, stammering, disturbances of gait, vertigo, mental inertia, changes in disposition, and melancholy with or without delusions. Chronic meningitis has been frequently found at autopsy and this together with

the cachexia usually present is the most likely cause of the mental change. A study of the cerebrospinal fluid has not been reported in other cases I have seen, but in our case there was nothing to speak in favor of a meningitis. However, a lymphocytosis present at the time of the meningitis may have disappeared.

The disease is progressive, incurable and death usually occurs from some intercurrent affection.

The following case showing involvement of the skull bones with little or nothing abnormal with the other bones, I wish to report:—

G. S., aged 55 years, single, was seen at City Hospital. Has never made his own living. He has never had any venereal disease and is not an alcoholic. He had a good education, having taken college work in an academy; always got along well with his studies, and was very fond reading and studying and especially fond of music.

Family history: The father dropped dead when forty-two; the mother who had been blind for many years following childbirth, died when seventy-one. The patient has one brother and one sister, both living and well. The patient is the oldest; his birth was very easy, normal and no instruments were used.

The patient was never very active on his feet, never being able to run and play like other children. At what age he learned to walk is not known by the sister who gives this history. She remembers that they had to have special shoes made for him on account of his difficulty in walking. He always had a good disposition.

At the time his father dropped dead, which was when the patient was twenty-six or twenty-seven years of age, the patient was taken with what the doctor called "St. Vitus' Dance". He was stupid and slept almost all the time day and night. He shook so hard as to shake the house at this time and was unconscious at times; he had a great deal of fever and sweats (malaria?). Just as soon as he would stop shaking he would begin to sweat. When he was twenty-seven years old the doctor, who treated him for the so-called "St. Vitus' Dance", wanted to tap his head for water on the brain, as he would sleep for two or three days at a time and complained of headache, and began to drag his feet when he walked. He stopped having

the shaking at this time and had no more symptoms of the "St. Vitus' Dance". After this his head began to enlarge. His head was never tapped.

When about thirty years of age his sister first noticed that his mind was affected. She has never noticed any change in the shape of his bones or his body other than the enlargement of his head. His sister has believed that his mind was always worse at the last of the month and the first of the next month, for at this time she could not leave him alone in the house without his going away. At other times in the month she could leave him safely.

Until about two years ago his mind was still pretty active, but for the last two years it has rapidly become worse. He has complained a great deal of dizziness. He has stammered nearly all his life. Not since he had "St. Vitus Dance" has he had any unconscious spells or convulsions. Since the onset of his "St. Vitus' Dance" his walking has very gradually got worse. No other members of his family have been affected in a similar way.

Pictures of the patient when six, twenty, and thirty-eight years of age show a very limited enlargement of the head, although they are all suggestive of the same peculiar square shape with enlarged bosses that the patient now presents. Twelve years ago the patient fell and cut his head open on account of his being unsteady on his feet. He has never had any trouble with the eyes and has never had any vomiting spells.

For the last year the patient has had a slight cough, but has had no night sweats. There has been no material loss in weight until lately, when he seems to have lost considerable strength and weight. He has a good appetite and seems to digest his food well. He has had considerable pain in the fingers and feet during the last eight or nine years.

Physical examination shows a man with an extremely large head, rather square in outline, slightly flattened on top, the frontal and occipital bosses prominent. The hair is thin and closely cropped. The circumference of the head measures twenty-five and a quarter inches. The patient says he has for years worn a number nine hat. Development and nutrition are fair, the skin is dry and anemic, and there is considerable cyanosis of the hands, feet and ankles and over the patella.

He has a general glandular enlargement. Hearing is good. The eyes show a beginning arcus senilis; the left pupil is slightly smaller than the right; the pupils are regular and react to light and accommodation; there is no nystagmus. The teeth are fair, tongue slightly coated and protruded in the median line; there is no atrophy but slight tremor. The speech shows marked stammering.

The thorax is well developed, fairly broad and deep, expansion very limited. Lung borders normal. Breathing is vesicular with dry rales over entire chest; expiration is prolonged, probably due to a slight emphysema. Heart boundaries normal. There are no abnormal heart sounds present; the second aortic sound is slightly accentuated. The pulse rate is eighty, rhythmic, regular and of good volume and tension. Nothing abnormal found in abdomen. The muscles are held rigid.

Examination of the nervous system: The gait is peculiar, with a wide base and a slight tendency to unsteadiness. The steps are short and mincing. In walking the patient rocks from side to side with the knees and ankles held stiff and a tendency to spasticity.

The bicipital, tricipital, patellar, Achilles and plantar reflexes are present; no Babinski sign; Oppenheim reflex present on left side; no ankle clonus. The muscles show no atrophy, but are tense and there seems to be some hypertonicity. There is a slight intentional tremor in the upper extremities. There is some thickening around the joints of the little finger of the left hand and this thickening is rather pronounced in the third and fourth toes of both feet.

The patient has no trouble in bringing the knees and feet together, although there is slight increase of the normal tibial curve. The tuberosity of the tibia is well developed. There are no changes in the long bones visible. Slight Romberg symptom present. The sense of position in the lower extremities is fairly good; there is no incoordination; no involvement of the sphincters and no sensory disturbances.

The patient's mental condition shows considerable inertia, although when aroused he is prone to make cute, witty remarks. He is disoriented as to time. Ordinary arithmetic tests are quickly answered correctly. He seems to have a fairly good memory for past and recent events. He is often noisy and ugly in the

wards and hard to manage, seeming not to understand, or to be obstinate. He shows loss of interest in things formerly enjoyed. He does not care to read or follow up his music, and shows a marked mental deterioration without any delusions.

Lumbar puncture shows nothing abnormal. The Wassermann blood test is negative. The urine shows a trace of albumin and a few pus and epithelial cells. Ophthalmoscopic examination is negative.

X-ray examination shows marked thickening of the skull, more marked in some regions than others. No other changes in the bones of the skull are to be detected. The pituitary fossae are seemingly slightly enlarged. There is nothing abnormal in the clavicles. The left humerus shows slight thickening at about the junction of the middle and upper third; this looks like an old fracture. There is slight roughening of the tibia and very slight bowing, perhaps not more than is present in many people. No changes in the structure of bones as to consistency, etc., are noticed.

1002 Rose Building.

Gustave C. E. Weber as I Knew Him

By MARTIN STAMM, M. D., Fremont, Ohio.

I would not arrogate to myself the power or ability to speak of our departed friend as he was, but simply as he appeared to me, and of the influence his whole being had upon me. My acquaintance and friendship with Doctor Weber dated since the Spring of 1876. His fame as a physician and surgeon was known to me long before and from his great work and reputation I had already formed a mental picture; in my mind's eye I could see a Siegfried in stature, as being commensurate with his mental caliber. I was, therefore, surprised to see a figure of more delicate fiber, with a finely chiseled head and the hand of an artist and was also deeply struck by the easy charm and courtliness of his manner and by his sweet and simple dignity. The beam of benevolence in his eyes and his deeply sympathetic voice were well calculated to call out the best of a man's nature and to create a wish to be more to him than a mere acquaintance. At

Read at the Memorial Meeting held under the auspices of the Cleveland Medical Library Association, Thursday, May 2, 1912.

that time I brought a patient to his office afflicted with a sarcomatous growth in the left supraclavicular region. Although sarcoma had been described by pathologists for some years it did not receive the clinical recognition at that time that it deserved. The case before us opened a vivid discussion upon the subject in all its phases and paved the way to a warm and lasting friendship. We found that we had been drinking from the same fountain of knowledge, had passed through that golden era of German student life which cast its poetic bloom over our after life and like a golden sunset permeated in variegated colors the hours of our deepest gloom and of dreary prose. I became a welcome guest under the hospitable roof of Doctor and Mrs. Weber and was sometimes afraid of overstraining that rare privilege. But I was at that time a struggling young practitioner, fresh from the school of adversity and hard knocks and such friendship was to me a gift from heaven and a powerful uplift in my comparative isolation. It was a veritable holiday to me when I could enjoy the intimacy of their home, presided over by so graceful a lady as Mrs. Weber, who combined the charm and refinement of the American woman with that soulful quality which only the German word "*Gemuethlichkeit*" can adequately express. In the evening, when the Doctor could rest from the daily grind of professional duties, he would unbosom himself and we reveled in the higher regions of thought and human aspiration.. We wandered through the fields of poetry, art and science, spoke of men who had left traces in the sand of time and generally ended near his place of birth, that country so full of history, legend and song, near the river Rhine, which has inspired many poets to verses full of patriotic fire, with its vineclad hills where the sparkling juice of the grape has stirred a true and light hearted race to optimistic thought and a life full of joy and noble deeds.

The year before I knew them Doctor and Mrs. Weber had made a trip to Europe and made a longer stay in Italy for the purpose of studying its art treasures. The doctor was still full of enthusiasm and very much impressed by the work of the old masters. Besides those of Michael Angelo and Raphael, the exquisite design and coloring of the masterpiece of Guido Reni, "The Aurora", at the palazzo Rospigliosi especially appealed to his senses and warmed his heart.

In an amusing way he related an occurrence which happened shortly after his Italian journey. When at Carlsbad Professor Seegen invited him to dinner, at which time he was introduced to a guest whose name he did not understand. The conversation led to art and as Doctor Weber came just fresh from the fountain of art, in his enthusiasm he unpacked all his newly acquired knowledge in that line. The stranger proved to be a good listener and at times made some apt remarks. They finally touched upon art in America and to the amazement of the doctor this strange gentleman seemed to be equally well informed even about the art treasures in private galleries in the United States, confessing at the same time that he had never been on this side of the Atlantic. Doctor Weber did not feel like asking the gentleman's name again, although wondering who he might be. A few weeks latter the mystery cleared up when he saw his photograph on the table in a friend's parlor in Germany and on inquiry found him to be Professor Luebke, the celebrated art historian. The doctor felt very much amused and flattered that in his first lecture on art he found such an apt pupil in Professor Luebke.

Doctor Weber was a shining example of the modern doctrine that man is the product of inheritance, environment and education. The muses gathered about his cradle and bestowed the costliest gifts upon the prospective citizen of two worlds. His father was a man of high scientific attainments and as an anatomist left a lasting impression upon medical literature and also received marks of official distinction. His mother, of noble birth, combined the refinement, womanly grace and intellect which birth and breeding alone can give. Such an atmosphere in the highest walks of life could not fail to leave an impress upon their gifted and ambitious son. He always dwelt with pleasure and pride upon the fact that his earliest recollection pictured him sitting upon the knees of Moritz Arndt, the great German poet, historian and patriot. Besides this, his native city of Bonn was the most aristocratic seat of learning, where the best intellects diffused their light. Was it any wonder that every fiber in him, every faculty of his young and ardent mind was aroused to action? Many a mind would have become oversatiated by such an "*embarras de richesse*" and would have lost every initiative; but he could say with our ambassador, James

Choate, that he was a self-made man in spite of opportunities. He received the most careful education at Bonn and for some time at Carlsruh.

I shall always remember an episode which he related one evening and which may be of interest to the mystically inclined. His mother came to visit him at Carlsruh during his New Year's vacation. He had invited several friends to the theater on New Year's eve, when his mother implored him not to go, saying that she had had a dream the night before that the theater was on fire. She offered to entertain them in their rooms as best she could. Two of the party insisted upon going, the rest enjoyed themselves at home. At about ten o'clock they heard the firealarm and soon found the theater in ashes; Doctor Weber's friends were not rescued alive. This incident always left a deep impression upon the Doctor's mind, and as his mother had had other similar experiences, with tragic endings, in her life before he would not allow you to become facetious upon oneirocritics.

At Carlsruh he devoted considerable attention to mathematics and astronomy, and I remember that one evening, in a moment of surgical depression, he regretted very much that he had not given himself up entirely to astronomy, thinking that cataclysms would not occur so frequently with heavenly bodies as they do with human bodies and that in the former case they could be viewed more impassively and from a greater distance. A few words of comfort, showing that by star gazing he would have left the world and the human heart untouched, that by his work as a physician he could spread more sunshine, hope and new life among his fellow beings, succeeded in lifting him out of his temporary gloom. Like all finer natures, who have a high conception of the duties and responsibilities of life, he at times thought that his life work did not reach the standard he had set before him and that it was not appreciated by those who received the most benefit. The speech that he made ten years ago, at the banquet given in his honor, was somewhat tintured with that melancholy strain and tuned to the key that "Life is short and the Art long."

I need not dilate upon his experience as an agriculturist when he first settled, about 1848, on a farm near St. Louis. I think it was in the neighborhood of a colony of Latin farmers,

so-called, as they were made up of German revolutionists, called the "forty-eighters." It would appear that most of them did not find the idyllic and pastoral conditions which Rousseau's works may have inspired in their youthful minds. Young Weber's good sense brought him back to that for which nature and education had intended him. After graduation from the Beaumont Medical College in St. Louis, he returned to Europe where he spent several years in the medical centers of Vienna, Amsterdam, Berlin and Paris, and came in more or less intimate touch with such men as Karl Braun, Skoda, Oppolzer, Hebra and the great anatomist Hyrtl in Vienna, Langenbeck in Berlin, Velpeau, Nelaton and especially Roux in Paris. He had practiced for a few years in New York when he received a call in 1857 to the chair of surgery of the Cleveland Medical College and it was here that he laid the foundation for his life's work.

His service as Surgeon General for the Ohio forces during the war of the rebellion has become a matter of history and has received high official recognition and praise. His experience in the field made him recognize the necessity of better clinical teaching and was probably the chief cause of starting the Charity Hospital Medical College in connection with the Charity Hospital. His great faculty of detecting merit and ability in other men and of making them useful for the advancement of our profession was clearly demonstrated by the group of men he selected to comprise the faculty of his new school. Such men as Metz of Massillon in ophthalmology, Salisbury in microscopical work, Scott, Firestone, Dutcher and others would have been an ornament to any school, and they did not disappoint him in carrying out his wish and intention to make the college a successful clinical school. Some of you are, no doubt, better able to speak about his qualities as a teacher than I, as I never heard him as a student, but simply as an invited guest. He seemed to be well prepared for the work, his statements were clear and logical, interspersed at times by some flashes of humor to make them more indelible upon the mind of the student.

In his clinical work it was a treat to witness his delicate handling of a broken or bruised limb or an inflamed organ. His uppermost principle was always "*nil nocere*", he was loath to add more pain to a mind already tormented with fear and misery. In all his work there was method and system, with no

undue haste. In his diagnosis every possible factor in medical reasoning was brought into play, nothing was too insignificant or trivial, and with his vast erudition as well as his *tactus eruditus* he would seldom fail to come to a correct conclusion. In his operative work the same care and deliberation were in evidence, the interest of the patient was uppermost in his mind, he did not operate for statistics or stage effect, and he was always mindful of the fact that it is of more importance for the average student to know how to treat a felon or set a broken limb than to see a laparotomy or an operation on the neck or brain. He possessed that wonderful faculty of striking the right cord with his patients and of reinforcing a faltering spirit, so that they would faithfully follow his instructions and submit to the knife with implicit confidence in the successful issue of an operation. When he began his surgical practice chloroform and ether had robbed operations of some of their terror, but loss of blood was not yet brought under the control which the Esmarch bandage and Peans artery forceps later on made possible. It took therefore, a man of stout heart and readiness of adaptation to become a successful surgeon, and Doctor Weber fully betrayed in his work that he had gone through that severe school. The conditions before the introduction of antiseptic surgery were truly disheartening when you hear that Volkmann, Nussbaum and Billroth lost about 68 per cent of cases of compound fracture of the thigh and 40 per cent of compound fractures of the leg, and that of sixty-four thigh amputations Nussbaum saved only seven cases.

When I first met Doctor Weber in 1876 antiseptic surgery was just dawning upon the profession, and Lister had the same experience that prophets have had in all ages and countries. In England, its birthplace, it found very little favor until Volkmann sent staff surgeon, W. A. Schultze, to Lister's clinic to study the method under the latter's guidance. We read Shultze's report in Volkmann's *Klinische Vortraege*, and shortly afterwards the brilliant results from Volkmann's and Nussbaum's clinic, and had lengthy conversations about the new procedure. The message was almost overpowering for the Doctor, who had witnessed at the bedside so many sad scenes from the ravages of sepsis and hospital gangrene. It was like the reawakening of Spring, a new fire seemed to course through his veins and he was eager to give this new method a thorough practical trial.

With boyish delight he witnessed its magic results; it gave him new zest for work. The ferment theory had been in vogue; Bergmann had chemically produced sepsin, which for some time was considered the pathogenic agent. The theory of air infection also took hold of the surgical mind and the carbol spray was its natural offspring. A special assistant was entrusted with the apparatus and I thought he had an inner delight in wrapping us in a tropical vapor. It was soon abandoned when Nussbaum called "Away with the spray!" The germ theory was in the air, but had not yet received the proper scientific basis, so that we who were believers in it and also ardent advocates were classified as "bug cranks."

Doctor Weber, during this age of stir and change, was in the prime of his life and took a very active interest in his professional work and in medical literature. Germany was at that time leading in medical and surgical thought. Volkmann's *Klinische Vortraege*, Billroth's *Die allgemiene chirurgische Pathologie, und Therapie*, Koenig's *Lehrbuch der speciellen Chirurgie*, Hueter's *Grundriss der Chirurgie*, Langenbeck's *Archive für klinische Chirurgie*, the *Zeitschrift für Chirurgie* and the *Centralblatt für Chirurgie* were at that time our principal sources of information and medical conversation. Stromeyer's autobiography under the title "*Erinnerungen eines deutschen Arztes*" was an especial delight for us to go through; the high ideals and the wealth of experience expressed therein and its noble diction inspired us both and found a deep echo in the Doctor, who had so many points in common with Stromeyer. In general literature Shakespeare, Byron, Goethe, Schiller and Heine were his favorite authors; the latter we always considered an antidote against the blues. It is to be regretted that the Doctor showed such an aversion to writing; he would have had enough material to make lasting contributions to science. The principal publications from his hand deal with a method of hemostasis with a special instrument for making a kind of cuff from the severed end of the artery. He also described a method of removing tumors from the pharynx or the upper portion of the esophagus. He was editor of the *Cleveland Medical Gazette*, founded in 1859, and continued in that capacity for the several years it existed.

In 1880 he was one of the prime movers in uniting the Cleveland Medical College with the Medical Department of Wooster University and he was elected Dean of the Western

Reserve Medical Department, as it was then called. It cannot be disputed that the new building of the Medical College, erected in 1887, was made possible through the influence of Doctor Weber, as the generous donation of Mr. J. L. Woods can be interpreted as a token of appreciation and friendship that the latter had for the Doctor.

Doctor Weber did not perform all his operations at the hospital; a large portion were done at the home of the patient, and some of them a great distance from Cleveland. His success under such circumstances was remarkable when we consider that it was accomplished at a period when everything in surgery was in a state of transformation. New methods and new ideas followed in rapid succession only to undo what had been done shortly before. Take all this into account and he measured up with the best of his contemporaries. He did not wish to be classified as a specialist and, indeed, I considered him nearly as good a physician as he was a surgeon. He liked to study man in his entirety, though he recognized the necessity of division of labor and concentration of thought upon one subject. But as a practitioner he maintained that the human element and the psychical relations between physician and patient should not be considered a negligible quantity. He knew very well the influence of the mind over the body and in a large measure he possessed the intuitive faculty of availing himself of the relationship and power which the physician can have over his patient. The charm of his personality and his sympathetic ways proved an asset of nearly as great a value as his whole therapy or his operative work. When in 1897 he was offered the consulship in Nürnberg by President McKinley, and before his departure to his native country, he received from all sides marked evidence of the unbounded confidence and abiding faith and gratitude his former patients had for him. Like any good and dutiful son who is moved by the desire to see his mother again a feeling, somewhat similar, to see his mother country came over the Doctor. On a visit in 1898 in Nürnberg I spent two very pleasant days with him in that town full of historic interest. The Doctor was greatly impressed with the industrial and national development of Germany, but made no secret that his heart was beating for the land of his adoption, the land of great promise and unlimited possibilities. He had great faith in its destiny and wished only to end his days near the shore of Lake Erie.

We all remember his return to this city, ten years ago, and the great ovation the medical profession of Ohio gave him and which had such a sad ending. We may imagine that the physical infirmity, chaining down the Doctor, as a result of that eventful evening, must have been a bitter disappointment to him and must have left him in a Promethean mood when he was so suddenly cut off from his former activity. But as he said he was a believer in the laws of nature and as a law abiding citizen was ready to obey orders, he could with such philosophical resignation adapt himself to the situation. As the faculties of his mind were unimpaired he must have felt the situation very keenly. But as he was able to look back over a life so rich in memories and ideas and so varied in experience, and to be in communion with his best authors and in touch with good and well wishing friends, the burden no doubt was made more bearable.

When I saw him the last time in company with a number of his old friends it was a great treat to hear him go over the last fifty years of his medical career, commenting on incidents and men of great note and interest, and it was especially gratifying to see that his memory still showed unusual vigor. The scene of this our last visit was one of great pleasure, but it was also greatly tinged with sadness to think such minds as his should ever become silent.

I think that Doctor Weber's life can be epitomized in the sentence which Goethe used when he heard of the death of Schiller:

"Er war doch ein herrlicher Mensch."

Nasal Headaches.

By D. A. PRENDERGAST, M. D., Assistant Surgeon, Nose Ear and Throat Dispensary of Lakeside Hospital; Consulting Oculist to St. Ann's Maternity Hospital, Cleveland.

Headaches of nasal origin resemble somewhat other reflex conditions arising from abnormal conditions in the nasal passages in that the severity of the symptoms do not have any definite relationship to the degree of abnormality in the nose. By that I mean an abnormal condition will produce marked symptoms in one patient while in another a similar condition will be borne with little discomfort. Within the scope of this paper it would be im-

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possible to even attempt to explain why patients react so differently to apparently similar conditions in the nose. In spite of the great mass of literature upon headaches in general and including the many theories advanced and the cures reported after various therapeutic measures, we must admit that very little is known regarding the nature of headaches. About all we are certain of is that we are dealing with a symptom and not with a disease and that we must look elsewhere than the seat of the pain for the cause, with the exception of the more serious intracranial conditions, inflammatory and otherwise, which are however as a rule easily diagnosed. Just what role the nasal chambers play in the production of headaches is still an unsettled problem. Owing to the enthusiasm of the early writers the pendulum swung so wide, as denoted by long series of marvelous cures, that the whole subject seemed doomed to fall into disrepute. The results in the study of nasal headaches are from clinical observation only and this in itself is sufficient to make them questionable. Clinical results lack the conciseness of the more scientific procedures. All too often, especially in an obscure condition such as headaches, the therapeutic agent which is in use at the time the symptoms disappear is regarded as the cure of the condition; but, in a conservative perusal of the literature, one will find sufficient evidence from careful observers to show that certain conditions in the nose do cause headaches and that good results are obtained by properly directed nasal surgery.

Among the most important abnormal nasal conditions causing headaches is faulty pressure between the lateral wall of the nose and the septum. A familiar example of this is the headache that follows packing of the nose after submucous resection of the septum. Headache is often bitterly complained of, but is as a rule promptly relieved when the packing is removed. The region of the nose where pressure has been found to be most likely to produce headache is the region of the middle turbinate, which is part of MacKenzie's reflex area of the nose.

Pressure in this region of the nose has been known to affect the ocular muscles and to be the seat of the symptoms of many cases of atypical asthenopia. Treatment directed toward the relief of pressure high in the nose has enabled me in a limited number of cases to clear up symptoms of asthenopia that persisted after careful correction of the error of refraction. Hoople in a

paper before the American Laryngological, Rhinological and Otolological Association in 1901 called attention to this condition. He showed in a series of cases that faulty pressure in the nose produced as it were a myasthenia of the ocular muscles and the muscular tone of the ciliary muscle was increased when the pressure in the nose was relieved by operative interference.

The following case will illustrate this condition:

Mrs. G., referred to me by J. J. Thomas, February 28, 1911. The patient is a well nourished young woman, whose general health is good. She complains of headache located in the brow and about the eyes. The headaches are worse after use of the eyes but she states that they are present in morning. She complains also of nasal obstruction and claims that the headaches are worse when the nose is blocked. I will not burden you with all the figures. Vision was 6-12 in both eyes. Esophoria of moderate degree. The most striking condition was the low power of accommodation, which was out of all proportion to her general muscular tone and to the degree of error. Refraction under homatropin gave hyperopic astigmatism: plus 3 sphere and plus 3 cylinder axis 90. Owing to the low accommodative power a postmydriatic was performed. At this examination the previous observation of low accommodation was confirmed. She accepted the full correction complaining of only slight blurring. +25 was deducted and glasses ordered for constant use. She returned one month later and stated that her vision was better but that the headaches, although better, still annoyed her considerably. She complained of nasal obstruction, declaring that the headaches were worse when the nose was obstructed. The condition in the nose was a deflected septum more marked in the region of the middle turbinate. There was evidence of constant pressure between the middle turbinate and the nasal septum. A submucous resection was performed and care was taken to relieve all pressure high in the nose. The result was good. She returned in two months and said she had been very comfortable since the operation but during the past two weeks her glasses seemed too strong. There was considerable blurring at distant vision. A second refraction under homatropin gave the same static results but I found more power of accommodation. I therefore deducted a +1 sphere. The final result was good. It is now eight months since the submucous resection.

It is not uncommon for patients to date the onset of headaches from a blow upon the nose, and not a few refer the pain to the eyes. The following case will illustrate this condition. This case is important because it belongs to that class of patients who do not refer any of the symptoms to the nose because the obstruction is situated high in the nose, the lower part being sufficiently free to admit free breathing. The symptoms, however, are undoubtedly due to constant intranasal pressure, for when this is relieved the headaches disappear.

Mr. M., aged 24. He is a well nourished young man, who two years ago was struck on the nose with a baseball. Since that time he has been troubled with headaches. These are worse after use of the eyes. He describes his pain as a dull ocular pain. This is often present in the morning but clears up about midday. It usually returns in the afternoon, especially if he is compelled to use the eyes for close work. Exam-

ination of the eyes showed the accommodation in this case, as in the preceding case, to be low. The refraction under homatropin showed a hyperopia of -1.50 in both eyes. Upon examination of the nose there was seen a deflected septum, probably due to an old fracture, pressing firmly against the middle turbinate. A submucous resection of the turbinate was done. The headaches promptly disappeared and after two months the tone of the ciliary muscle increased, enabling the patient to use his eyes with comparative comfort.

These two cases are given because they are typical cases, corresponding closely to the condition designated by Hoople as a nasal condition affecting the ocular muscles. But as has been stated, the reflex symptoms from intranasal abnormalities vary greatly in different patients. In my own very limited experience, cases complaining of headaches, presenting every evidence of pressure in the region of the middle turbinate with ocular muscles normal to all tests, showing that the headaches were purely nasal in origin, have been noted. Many theories have been advanced to explain this condition, but it is not our intention to discuss the theoretical side in this paper but simply to emphasize the value of nasal examination in cases of asthenopia that do not yield to glasses.

There is another group of cases whose nasal passages are not spacious enough for physiological turgescence. In these there may not be any apparent obstruction from a deflected septum or hypertrophied turbinate tissue; in fact, unless examined during the stage of turgescence the nose may be regarded as normal. Cases of this group belong as a rule to the neurotic type whose whole vasomotor system is unstable and reacts more readily to influences that are known to affect the normal person, such as atmospheric changes, emotional shocks, errors in diet and so on. Clinicians tell us that on dark gloomy days, when the humidity is high, the neurotic is more introspective, his whole vasomotor system lacks tone and he complains of languor and not infrequently of dull headaches. The nose being made up of large venous spaces largely under vasomotor control, shares to a marked degree the condition of the whole vascular system and great engorgement of the turbinate tissue results. This faulty condition in the nose may account for at least part of the headache complained of. These cases are more likely to complain of periodic headache. The following case is an example of this group:

Mr. R., aged 32, referred to me by C. L. Difford, complains of periodic headaches and a long train of neurotic symptoms. The headaches are worse during damp weather and are often present in the morning, but are relieved after cleansing the nasal passages with salt solution. He

complains of catarrh and nasal obstruction at times. The first examination of the nose showed only hypertrophy of the middle and inferior turbinate. He was instructed to return when the nose was obstructed. The next examination showed marked engorgement of the turbinate tissue of one side. It was plainly evident that there was not sufficient space for this patient's physiological turgescence. The turbinates were operated. He was kept under observation for four months, during which time he declared that since he could breathe better through his nose at all times his headaches had practically disappeared. The ocular examination in this case was negative.

Headaches are a common symptom of sinus disease. It will not be possible, however, within the scope of this paper to consider the whole subject of sinusitis. A sinus condition that is often overlooked and a common symptom of which is headache is the retention of normal secretion by some obstruction in the nose located near the hiatus semilunaris. It may be regarded as the prepurulent stage of sinusitis, for clinically at least there are no symptoms of purulent infection. Sooner or later, however, retained secretion of this character will form a favorite medium for the development of pyogenic organisms. The following case is an example:

Mr. N., referred to me by J. K. Gamble, complains of headaches for six months. The headaches are present in the morning but grow worse during the afternoon. He does not complain of nasal obstruction, but states that cleansing of the nose with salt solution in the morning at times relieves the headaches. Examination of the nose showed moderate hypertrophic rhinitis. The middle meatus was not examined with the aid of adrenalin at the first examination. Refraction under homatropin gave practically normal results. He was under treatment for lues of six months' standing and the headaches were attributed to this infection. At the second examination the pain was located over the left eye. Firm pressure over the region of the frontal sinus elicited only slight pain. Transillumination of the antrum and frontal sinus was negative. A careful examination of the middle meatus was made after contracting the soft tissues with adrenalin and a small mucous polyp was observed located in the region of the hiatus semilunaris. This was excised and the middle meatus curetted. The result in this case was a prompt disappearance of the headaches. There was no recurrence during the four months that he was under observation.

New growths in the nasopharynx are another well known cause of headaches. The excision of adenoids and hypertrophies of the posterior ends of the turbinates often relieves chronic headaches. One of the first symptoms of nasopharyngeal fibroma may be constant headache. The headache may be present before the nasal obstruction and should always arouse suspicion. Early diagnosis of this condition is very important, for among the so-called benign tumors none is more intractable to treatment or more disastrous in its results than the true nasopharyngeal fibroma. The following case belongs to this group:

The patient, referred to me by Charles Thomas of Warren, Ohio, complains of headaches and nasal obstruction beginning four years ago. He states that headaches were present at least six months before any great difficulty in breathing through the nose was experienced. He was operated upon four times during the past three years each time with some relief in both breathing and headaches. During the past six months the headaches were almost unbearable. Hypodermic injections of morphin gave the only relief during the past months. The pain was located entirely in the occipital region. The patient seeks relief more for the headaches than for the nasal obstruction. The usual operation for nasopharyngeal fibroma was performed at the Warren City Hospital. A radical excision of all the new tissue in the nasopharynx was done, and at a later date a submucous resection for the correction of a deflected septum was done. The results in this case were good. He was comfortable for twelve months. At the end of this time he returned complaining of the same symptoms. There was every evidence of rapid recurrence. A second operation similar to the first was performed, but the results of this were not determined, for the patient died five hours after operation with symptoms typical of surgical shock.

I wish to thank C. E. Pitkin for much valuable assistance.

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The Menace to the Public by Feeble-Minded Persons Living Outside Institutions.

By THEODORE DILLER, M. D., Pittsburgh.

At the government census of 1890 the number of feeble-minded was reported as 95,000, of whom only 5,200 were found in special institutions; another 2,500 were in asylums for the insane. The number of feeble-minded persons in the United States, that is those so pronouncedly feeble-minded as to stand in need of institutional treatment, was estimated in 1904 by John Koren, expert and special agent for the United States Census Bureau, at 150,000. Koren reports only about one-ninth of this whole number, or about 17,000, as residing in institutions especially intended for the feeble-minded. He further estimates that an additional 16,000 feeble-minded persons were inmates of almshouses. In round numbers then, according to this estimate, 33,000, or one-fifth of the entire number of feeble-minded persons in the United States, were found in institutions, and four-fifths, or 120,000, were living outside institutions in 1904. The number of feeble-minded in special institutions had grown from 5,000, in 1890, to 17,000, in 1904.

A paper read before the Chicago Medical Society at its meeting, April 17th, 18th and 19th, 1912; and before the Academy of Medicine of Cleveland, Friday, April 19, 1912.

The following table, taken from Koren's report, indicates the total number of feeble-minded in institutions in 1904, and shows as well the numbers in the several states. It will be seen that the various states provide very differently for their feeble-minded, and that many of them have not yet provided any special accommodations for them.

Feeble-Minded in Institutions: 1904.

State	Total Number	Enumerated Dec. 31, '93	Admitted 1904
Continental U. S.	16,946	14,347	2,599
North Atlantic Div.	6,651	5,699	952
New Hampshire	72	64	8
Massachusetts	995	878	117
Connecticut	262	219	43
New York	2,594	2,135	459
New Jersey	527	460	67
Pennsylvania	2,201	1,943	258
South Atlantic Div.	397	338	59
Maryland	176	162	14
Virginia	46	35	11
West Virginia	175	141	34
North Central Div.	8,859	7,459	1,400
Ohio	1,307	1,125	182
Indiana	1,118	1,036	82
Illinois	1,507	1,283	224
Michigan	657	516	141
Wisconsin	710	611	99
Minnesota	1,071	888	183
Iowa	1,152	981	183
Missouri	354	250	104
North Dakota	86	...	86
South Dakota	77	51	26
Nebraska	386	337	49
Kansas	434	381	53
South Central Div. (Kentucky) ..	224	189	55
Western Div.	785	662	133
Colorado	33	14	19
Washington	124	81	43
California	638	567	71

Joseph Neff, Director of the Department of Health of Philadelphia, has devoted much time and labor to the investigation of the problem of the feeble-minded, especially as it presents itself in Pennsylvania and has published several very valuable pamphlets on the subject to which I must refer. Neff estimates that there is one feeble-minded person to every 500 of population in Pennsylvania. The statistics of Tredgold for England indicate a much higher proportion of feeble-minded for that country.

In this estimate merely backward and deficient persons of types not greatly pronounced are not being considered. But enough has been said to show that the vast majority, at least four-fifths of all pronouncedly feeble-minded persons in the United States, are living outside institutions; and of those living inside institutions, only one-half are living in the proper kind of institutions, i. e., institutions especially equipped for the feeble-minded; and the other one-half are living in almshouses, which are not properly adapted for these individuals and where they cannot be properly protected. It is the chief object of this paper to call attention to the dangers and risks which society encounters by reason of the fact that the great majority of feeble-minded persons are living outside institutions and to advocate what appears to me as the proper remedy for this evil.

What are the dangers to the public from feeble-minded persons living outside institutions? These dangers are manifold and most of them very obvious. The first and most striking risk to society is the propagation of feeble-minded by individuals of their kind. I believe it is now so well established that the most prolific cause of feeble-mindedness is heredity that no argument need be used before this audience to support this proposition. The famous Jukes family, with its long history of generations of feeble-mindedness, degeneracy, prostitution, and criminality, is well known. The recent work of H. H. Goddard, of the New Jersey Training School for Feeble-Minded Children at Vineland, New Jersey, shows in clear and convincing way the terrible effects of heredity as the cause of feeble-mindedness, and that feeble-mindedness very often means degeneracy, criminality, prostitution and vagrancy.

Neff has shown that feeble-minded women in general are more prolific than normal women, and that practically all of them become mothers soon after reaching the age of puberty. To support his contention he has cited many illustrative cases.

Hence it becomes perfectly obvious that the greatest source of production of feeble-mindedness is propagation of the feeble-minded by the feeble-minded. Imbecility is never cured—once an imbecile, always an imbecile. Can it be pre-

vented? It would appear clear that our only hope of reducing it must be in the prevention of it. And it would appear plain that if we can prevent the feeble-minded from propagating their kind we will do much, very much to prevent and decrease imbecility.

Can this be done? Should it be done? How can it be done? I propose to address myself to these questions. But before doing so I must point out other dangers to the public by reason of imbeciles residing in their midst, though they shrink into secondary consideration as compared to this first great danger which I have just indicated, that of propagation of their kind.

While many feeble-minded persons are regarded as harmless aside from the danger of begetting offspring, it must be remembered that probably the majority of them possess more or less degenerate instincts and are capable of committing murder, arson, rape, and other serious crimes. Moreover, the great majority of them are inadequately cared for and others are ill-treated or abused in various ways.

What should be done with this terrible problem of the feeble-minded before us? We have seen that the population of specially adapted institutions for the feeble-minded grew from 5,000 in 1890 to 17,000 in 1904; so it would appear that the need of these special institutions is being more commonly and generally recognized. And the good that they have done and are doing becomes obvious to those who have visited them. I can speak very strongly for the Feeble-Minded Institution at Polk, Pennsylvania, which, through the courtesy of J. Morehead Murdoch, the Superintendent, I have several times visited. In such institutions the conditions for the feeble-minded are ideal. But it is seen that the various states have inadequate, often pitifully inadequate, accommodations for the feeble-minded. What shall be done?

I would advocate that the several states shall, as speedily as possible, possess themselves of adequate accommodations for feeble-minded persons within their borders. But as a preliminary step to this end, I would advocate that each state ascertain the name and address of all feeble-minded persons residing within its borders. Diligent search over two or three years would probably bring out a fairly complete

list of feeble-minded persons. For we must remember "once feeble-minded, always feeble-minded." And the obviously feeble-minded, those now considered, could, with a little pains and industry, be ascertained. And then I would have the law so shaped that the state, through a proper board and executive officer, should determine the question as to whether a particular feeble-minded person should be allowed to remain at home or whether he should go to an institution, subject, of course, to the limitation of accommodations. At present in the State of Pennsylvania (and I presume it is likely the case in other States) the question of whether a feeble-minded person shall go to an institution or not, or if already there, as to whether or not he shall remain there is in the hands of the parents of such a person—the very individuals who are least competent to decide it rightly. I have had numerous experiences where I have strongly advised that a feeble-minded child be sent to the institution at Polk for the good of the child, for the good of the parent, and for the good of the public, and where the parents have declined to take the step. Also I have had the experience of seeing feeble-minded persons taken to an institution and brought away from it against the advice of the superintendent of the institution and of myself. In short, this very important and fundamental question of admission or discharge from institutions for the feeble-minded is decided by the parents of the feeble-minded; and the institution or the family physician have only advisory powers. This is obviously and radically wrong and should be corrected; it could be corrected if the State made a census of all feeble-minded, provided enough institutions for them, and for the good of her citizens took authority to send any feeble-minded child to the feeble-minded institution and compelled him to stay there until she saw fit to release him. All this is only right and proper; and if the State wishes to protect herself from the propagation of imbeciles, and from the dangers of arson, rape and other crimes, and if the feeble-minded persons are to be protected from neglect, cruelty and abuse, such measures as I have indicated must, I believe, be taken.

All this means a great undertaking, as I am well aware. But surely it is best to face this great problem fairly and squarely as it exists before us. Other questions come up in

connection with this question. As for example, whether sterilization of feeble-minded men and women is right and proper and expedient. This thing might be done and might have its place in a comprehensive state law; but I regard it as of secondary importance, but if needful it, too, should be employed. No imbecile woman of the child-bearing period should be allowed to live outside an institution unless she is sterile.

To reiterate, I believe that the State should make as complete a census of the feeble-minded within her borders as possible, and say which feeble-minded persons shall be in institutions and which shall be allowed to remain at home, and shall have power to keep those already in institutions in them as long as she may deem it best for the public and the imbeciles concerned. And should sterilization be found necessary to prevent propagation of imbeciles, the State should not hesitate to use it.

Pulmonary Hemorrhage and Its Relation to High Altitude.

By F. E. MERA, M. D., and I. J. BISKIND, M. D., Santa Fe, New Mexico.

(From the Sunmount Sanatorium, Santa Fe, New Mexico.)

Hemorrhage in pulmonary tuberculosis is very frequent. We may assume that out of every hundred patients sixty suffer from this dreadful complication. Those that have had it once are apt to get it again and again. It is certainly more frequent in the earlier stages than in the far advanced stages. On the other hand, hemorrhages in the far advanced cases, where softening has set in, are almost always more or less profuse, and consequently more dangerous than in the early stages, where the hemorrhage may be only a mouthful or two. Very often hemorrhage is the first symptom of the disease. A man seemingly in perfect health coughs up some blood. On examination we find an affected apex or base, and under proper treatment the man may completely recover. These are the so-called abortive cases. In other cases the initial symptom may be a profuse and dangerous hemorrhage.

As to the exact pathology of early hemorrhage there is still divided opinion. Many think that it is due to a localized

hyperemia in the immediate neighborhood of a tubercle. Flint cited a case where the autopsy showed this diagnosis to be correct. Others think that the formation of a tubercle in the wall of a blood vessel causes narrowing of its lumen and hence the blood-pressure inside of this vessel is raised. Any abnormal increase of intravascular pressure will cause a rupture of the affected vessel and a hemorrhage. The severity of the hemorrhage will depend upon the size of the vessel and the state of coagulability of the blood.

Where the destructive process has been going on for a time and a cavity has been formed, the blood vessels of the area affected are laid bare. Their coats are weakened and either rupture suddenly or their walls give, and small aneurisms are formed which may break at any time and cause fatal hemorrhage.

In chronic pulmonary tuberculosis, where the process of caseation goes along slowly, the chronic inflammatory process in time obliterates all these bare or exposed vessels before rupture of their walls takes place. But even here, once in a while, a lumen of some vessel is left open before the latter had time to atrophy completely, and a fatal hemorrhage may ensue. The entire volume of blood of the human body has to pass through the pulmonary system, which is quite smaller than the aortic system. Hence there is higher blood-pressure in the pulmonary system even under normal conditions. When the pulmonary system has become lessened by disease the pressure is still higher, and the least exertion may cause a rupture at a point where the resistance is decreased.

High blood-pressure is supposed to play an important role in causing pulmonary hemorrhages in tuberculosis. It would stand to reason that an undue rise in blood-pressure, whatever it is caused by, might result in the rupture of an eroded blood-vessel; we very often see a hemorrhage caused by lifting of heavy weights, running up stairs, overdue excitement, etc. Still, a very large percentage of patients show quite a low blood-pressure before the hemorrhage and after. Klebs quotes Otis as having found one patient with higher than normal blood-pressure out of eighteen patients examined, the seventeen having normal or less than normal before and after the hemorrhage. In view of this fact it would seem

more plausible to assume that a steady elevation of the arterial tension would be a good deal less apt to cause a hemorrhage than would a sudden rise caused by a hard coughing spell or sudden fright and the like. We can very well argue that a steady high blood-pressure is a very small factor in causing pulmonary hemorrhages from the fact that pulmonary hemorrhage is very rare in infancy and seldom met with in childhood, occurring most frequently at the ages of twenty to twenty-five years, and becoming less common after the age of forty-five years. Now, we must admit that the blood-pressure is not any lower in childhood than it is at the age of twenty or thirty. Living in a high altitude (according to the observations of Peters) elevates arterial tension, and yet the percentage of pulmonary hemorrhages at the different sanatoria is a good deal lower than in the lower altitudes where the blood-pressure is supposedly lower. Here at Sunmount, near Santa Fe, the percentage is as low as 4 per cent. There must be some factors other than blood-pressure which help in producing pulmonary hemorrhages.

We are told that arteriosclerosis is a great factor in causing pulmonary hemorrhages, so that one would look for hemorrhages in the old more frequently than in the young. Experience has taught us, however, that it is more rare as age advances and is very rare at a very advanced age, where sclerosis is mostly always present. It would seem to us that in the early stages, where hemorrhage is usually due, according to Babcock, to a tubercle growing in the wall of a blood vessel, that sclerosis would be rather a protection against rupture due to the invasion of the bacilli.

Heredity, according to Fox, may have something to do in predisposing a patient with tuberculosis, whose parents were afflicted with the same, to repeated hemorrhages.

Klebs has observed that close, damp weather, with low barometric pressure, is apt to produce hemorrhages, which may come in epidemic-like spells. Thus W. L. Dunn reported the occurrence of sixteen cases of pulmonary hemorrhage in one week. Pottinger has also observed this epidemic-like outbreak of hemorrhages in his sanatorium as well as in private practice in Los Angeles. This suggests that barometric pressure, and other weather disturbances, may have some

influence in producing hemorrhages. Bonney of Denver has noted a considerable increase in hemorrhages in Colorado during the spring months. He also believes them due to the abrupt changes in weather, increased wind movement, and agitation of dust.

The percentage of hemorrhages in pulmonary tuberculosis is variously given as between 20 to 80 per cent. It is most remarkable, though, to note how low the percentage is in sanatoria. Looking over the records of over a hundred cases here in Sunmount Sanatorium, the percentage is only 4. The reason may be that here we have hardly any perceptible spring or fall, nor sudden changes in temperature, nor sand-storms, as we are hemmed in between the mountain ranges that protect us on all sides. But the fact that the percentage comes down to 20, and even 10, at the southwestern sanatoria, while in the East the percentage is as high as between 40 to 60, makes one think.

We often hear physicians say that their cases do just as well at home, under intelligent management, and providing they follow instructions. We beg to differ. That "providing they follow instructions" is the main stumbling block. A person can never be under strict discipline at home for a year or more without breaking it. The physician can never eliminate all excitement, mental strain, worry caused by family and business affairs, while at home. We know of a case that had been in a fair way to recovery when the grand opera came to town; he, being a great music lover, insisted upon going and the attending physician gave his permission. The patient attended the first two acts and was seized with a severe coughing spell. He had to be taken home, where he had a severe hemorrhage. Anything like that can never happen in a sanatorium.

Others say that so long as the patient is in a sanatorium, under good care and discipline, the altitude and the climate have very little to do with his improvement. Here we must differ again. We want fresh, clear, and not very cold air for our patients. We want the temperature more or less steady. We don't want our patients to be exposed to 20 degrees below zero, nor do we want them to be in an atmosphere of 120 above. We cannot have ideal weather with low humidity

at sea level. Furthermore, according to the recent work of Webb, continuous residence at high altitude invariably increases the number of the mononuclear lymphocytes, which, according to later investigators, are combating the Koch's bacilli. It is an undisputed fact that there is an increase in the erythrocytes from five million to eight million in high altitude. If one takes all the above facts into consideration, one will not hesitate to send his incipient cases to a sanatorium in a good climate and under the care of an able man. In the East the percentage of recoveries in incipient cases is not as high as the sanatoria out here can show in their advanced cases. Especially in the hemorrhages of the initial stage (which, according to Babcock and other investigators, are far more frequent than in the advanced cases) the patient should be sent to a good sanatorium out West, where, as stated above, hemorrhages are a good deal more rare.

An Apparently Successful Psychoanalysis.

H. H. DRYSDALE, M. D., Cleveland.

Through the genius and industry of Sigmund Freud and his students, there has been placed in our hands a therapeutic resource which not only introduces a new system of psychology but provides the scientific means of detecting the hidden causes of many functional disorders of the nervous system which have hitherto failed of adequate appeasement.

The chief feature of the Freudian principles is its exclusive restriction to the sphere of unconscious impressions—impressions which exist in a realm functionally apart from the conscious life. You will remember that this remarkable doctrine was rather accidentally discovered and how Freud in closely scrutinizing the history of an hysterical young woman, whom he was unable to cure in the ordinary manner, observed that when many hidden facts, relative to painful and disagreeable experiences which she had years before encountered and which had long been forgotten, were revived and brought to the surface of conscious recognition, a peculiar emotional reaction occurred which was followed almost instantly by a sub-

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sidence of her torturing doubts and apprehensions, her feelings of dread and inadequacy, as well as the pantomime of somatic complaints which were the outward expression of her hysterical state.

Finally Freud gave to the medical world his findings after years of painstaking investigation. While some of his theories, especially those pertaining to the sexual element, have been bitterly opposed by several eminent neurologists, nevertheless his method of mind analysis, psychoanalysis so-called, has been generally acknowledged to be an instrument of great power for good when skillfully applied in selected cases. Furthermore, unbiased observers, the world over, have during recent years repeatedly demonstrated to a degree that precludes all doubt, that experiences long buried and long forgotten do continue to exercise a dynamic force in the life of individuals, influencing their reactions and apparent motives and that these subconscious undercurrents, repressed but active, may acquire the strength to actually dominate the entire mental patrimony.

Freud however insists that the only repressed memories which are really etiologically active in the production of hysterical symptoms are those that are in some way connected with the sexual life. He considers no hysterical person to be normal sexually and this is the phase of his theory which has aroused the most opposition. The majority of investigators are at present of the opinion that psychic insults which are in no manner connected with the sexual sphere may provoke the same symptoms and I desire to associate myself with this point of view.

Accordingly, hysterical manifestations with their infinite variety of appearance are no longer regarded as purposeless and without meaning, but must be considered as an expression of unconscious trends which have not been adequately reacted upon. To make this more clear, permit me to draw the following analogy. If one of us should be accosted on the street by an enemy and subjected to gross insult, we would at once retaliate either verbally or physically. If this is not done one of two things will happen. A strong minded individual would consider the source of the insult and by reflecting upon his dignity and self-esteem, promptly cast it aside, and the incident would be closed. Thus a normal person is able to cause the disappearance of the memory of a pain-

ful episode by means of association. But, if the individual is nervously unstable or abnormally impressionable, he may take the grievance to heart and permit it to invade his psychic organism, where it continues to act subconsciously as a foreign body. That this conception is no mere figment is attested by the fact that each morbid symptom straightway disappears as soon as the memory of the specific cause is fully awakened in a manner appropriate to the required affect.

The advocates of psychoanalysis do not claim that the method is a panacea for psychoneurotic disorders. All are willing to admit that there are many cases which, for various reasons, cannot be analyzed. For my part I only depend upon it as a measure of last resort. It is claimed and justly I think, that the method is one which from the standpoint of results surpasses all other methods of treatment of the psychoneuroses and it is hardly fair, either to the profession or to the neurotics, that conclusions as to its therapeutic worth should be drawn from failures that are obviously due to faulty technique.

The case to be reported, Miss R——, is of interest as the causative determinant was traced directly to a mental conflict between the libidinous characteristics of the patient on the one hand, and the repressive ideas of a sexual nature on the other. It, therefore, fully sustains the Freudian doctrine.

When the patient was first seen, December 1, 1911, the thought of subjecting her to a psychoanalysis was farthest from my mind. The physician who referred her intimated that her nervousness was of long standing and that he feared she was about to lose her reason. An attempt to examine her at this time was entirely impossible. She was pathetically emotional, sobbed aloud, was acutely disturbed, and her conduct was strongly suggestive of the developmental stage of a manic-depressive psychosis. I then decided to remove her from her home environment and arrangements were made for her immediate admission to a hospital. When she arrived she was still in a most agitated frame of mind, but this was relieved by prolonged hot baths. It was also necessary during the night to administer a dose of paraldehyde. From this time on comparative quiet reigned in this young woman's troubled mind and the following particulars were obtained:

She is a single girl, twenty-six years of age, a native of

Russia, who accompanied her parents to America when less than two years old. Anthropologically and otherwise she corresponds to her type—Russian Jewess. Temperamentally she is gentle and refined, a cultured and intelligent young woman.

Family history: Her ancestral record so far as I was able to ascertain, was negative for nervous or mental instability. The family is intact and consists of a father, mother and three adult brothers. All of them are healthy, vigorously constituted and free from neurotic tendencies.

Personal History: My patient developed normally and as a girl was playful, active and alert. She started to go to school at the age of seven and was studious and ambitious. Her lessons were always agreeable tasks. She enjoyed the best of health and progressed regularly each year.

The menstrual epoch appeared when she was 13 years old and this undoubtedly had a most unfavorable influence upon her psychic functions. She had no inkling what it meant and ran screaming to her mother, who joked about it. Here is a good example of the harm that may result from neglecting to impart proper instruction to developing youth in matters of sex hygiene. At least this patient is firmly convinced that the shock of this totally unexpected incident was the cause of her wretched nervousness as, prior to this event, she was brave and courageous, with an abundance of self-mastery.

Her personality also underwent a gradual change. She lost interest in matters which formerly attracted her; she did not seem to care for the society of young people but preferred to spend her loose moments reading. Recreation or playful pastimes no longer appealed to her. Finally she found herself growing restless and exceedingly self-centered. Clouds of depression would hover about her and she was at a loss to understand what it all meant. Ideas came thick and fast. Her imagination ran riot. People would meet her on the street and remark how well she looked, but at the same time she was tortured by tormenting doubts and harassing fears. She almost lost control of herself; was painfully sensitive, timid and apprehensive.

For a long time she had endeavored in every conceivable manner to gain an upper hand of her strange affliction but nothing she could do would bring relief. She would not, unaccompanied, go out on the street, or enter a street car for fear

something terrible might happen. She was easily frightened and dreaded to meet people or converse with them. At the theatre strange feelings would possess her, especially when the auditorium was darkened and she was invariably on the lookout for the red lights which indicated the location of the exits.

She was also subject to emotional variations. Some days she would be quite herself, much to the delight of the family, who had become greatly concerned. At other times she would seek seclusion; cry without apparent cause and be sad and depressed. On one occasion she saw a pregnant woman on the street and she quickly turned and fled; she said it was the worst fright she ever received and to this day the very thought of it makes her shudder.

For many months she made a confidante of no one, and did not even discuss her condition with any of her relatives. She visited the family physician twice, but did not tell him the true facts, for fear he might consider her mentally unbalanced.

She informed me that for over a year she has suffered from recurrent pains in the head and these of late have been almost unbearable. They felt like large elastic bands stretched to the limit and about to snap. She also has been awakened out of a sound sleep by crushing sensations about her chest and she would find herself badly frightened and bathed in profuse perspiration. But worst of all were the swaying motions in the abdomen which were particularly troublesome when she started to walk. Not long ago both lower limbs suddenly were benumbed, but this lasted only a day or so. While she described the troublesome somatic complaints she burst into tears and remarked that if these could be cured she knew she would get well. She did not believe she could endure it much longer.

The physical investigation outside of the nervous system was practically negative.

Neurological Examination: Motor symptoms: Coordination good; no pathological swaying; coordination in hands and legs equally good; flexor and extensor strength vigorous. General muscular development excellent. Attitude erect. Station and gait unimpaired.

No paralysis whatever; no paresis, facial musculature

equally innervated. No contractures, no tremors and no spasticity.

Deep reflexes: Both knee responses sharp, the right more so than the left. No patellar clonus. Tendo achillis reflexes both normal. Triceps and wrist negative. No jaw jerk. Pharyngeal and corneal reaction accurate. Epigastric and abdominal reflexes more marked on right side. Plantar flexion on both sides on stimulation of soles of feet. No ankle clonus.

Dermographia well marked and persistent over the entire trunk. Pupils equal, regular in outline, moderately dilated and reacted promptly to light and distance. No paralysis of accommodation and no contraction of visual fields. No disturbance of other reflexes noted.

Taste acute; smell normal; hearing intact; temperature sense unimpaired; muscle sense perception well preserved; stereognostic sense accurate. Moderate hypalgesia on back of thigh and left calf; no areas of complete anesthesia, no hyperesthetic zones, no paresthesia and no alloesthesia. Speech was under perfect control and free from impediment or other defect.

During the first ten days in the hospital systematic massage, stimulating saline baths, wholesome diet, healthful suggestions, rest in bed and freedom from annoying irritations were religiously complied with, but no improvement whatever resulted. Each day she suffered a return of her peculiar head pains and swaying of the abdomen. She would scream out at the top of her voice and pitiably appeal for help. These attacks would last for about twenty minutes, after which she would relax and quiet down. On a Sunday evening I visited her and she expressed surprise at the late hour of my call. I jokingly replied that I had been home reading the Bible. This idle statement proved to be a most fortunate stroke, as you will see later on. Hardly had the words been uttered when a distinct flush came over her face, she grew restless and fidgety, covered her head with the bed sheet and began to sob. I told the nurse we had resurrected something, but not until this moment did I plan to study her psychoanalytically. Leaving the room I visited other patients and returned in an hour. She was calm, but intensely discommoded. I was anxious to know more about her experience with the Bible and she frankly told me that she had been reading it more or less exten-

sively for years and found that it contained many terrible assertions, some of which she could not believe. As to which particular ones she referred she did not seem to remember, but it was plainly evident that she was dodging the question.

After considerable urging and impressing upon her the fact that it was most essential for her welfare that she tell me what assertions had especially impressed her, she replied that the term "Immaculate Conception" had bothered her most of all and she was extremely anxious to know if such a condition was possible. She appeared to lose her nerve at this moment; her voice quivered; her body trembled and her pains returned with all their furor. Nothing I could say or do would comfort her and I departed promising to call the next day.

Her chart showed that the night was a restless one and she did not fall asleep until dawn. She ate sparingly of her breakfast but her bath and massage had apparently invigorated her as she was cheerful during the day. Late in the afternoon I returned and resumed my search for a subconscious explanation of her nervousness. Taking up my inquiry where I left off, I discussed with her the subject of "Immaculate Conception" and obtained the following facts:

She was fond of reading and had found biblical history fascinating. The Bible appealed to her and she studied it with great care. Many of its teachings she could not understand and she never rested until she looked up their definition in the dictionary or elsewhere. Furthermore, she was at a loss to know why such matters concerned her at all and why they incessantly haunted her. She labored assiduously to dispel them from her mind but had failed. The term "Immaculate Conception," more than any other, seemed particularly to affect her and despite her efforts to secure a proper understanding of it, she was still in darkness as to its true meaning.

One morning the family attended a service at which this phrase was referred to, and again her curiosity and interest were aflame. To make matters worse, she overheard her mother ask her father if there was such a thing as "Immaculate Conception," and she heard him reply, "Of course not. Pregnancy could occur only in the usual way." He offered no other explanation. From this time her restlessness was intense and she was sore afraid. She visited libraries and

even sought medical books in order to solve the mystery. About this time she noticed that a peculiar, indefinable sense of fear pervaded her when she heard of a woman having a baby and when she saw a pregnant woman on the street she almost fainted.

I then decided to carefully explain what "Immaculate Conception" actually meant, but it did not seem to satisfy her. In reply to my question as to whether she believed that such a condition was possible she said she did not know but it greatly worried her. Changing my tactics I gently inquired if she ever had an immoral experience and this she positively denied. Nor had she ever practiced onanism. Before I was through with her, however, I learned that for over a year she had considered herself pregnant and that inasmuch as she had done no wrong the condition must be an "Immaculate Conception." She also admitted in a half-hearted way that she had been preparing for the event.

I then arranged for a pelvic examination. As I palpated her abdomen she started to cry and asked if I did not feel swaying and movement. I promptly informed that I did not. She then added that she knew her abdomen was getting larger and again I disagreed with her as nothing abnormal could be elicited. The bimanual examination was of course negative, in fact her uterus was undersized. As she awaited the verdict she took on all the appearance of a person badly frightened and anxious. When she was assured that the condition suspected did not exist, her joy knew no bounds and she exclaimed "What a burden has been lifted off my mind."

The patient remained in the hospital ten days longer and during that time the abdominal swaying entirely subsided and the head pains lost their acuteness. Inasmuch as she was under better control and sleeping well, I decided to permit the matter to rest for a while, although I was well aware that the whole story had not been related and that I had not eliminated the original cause of her trouble. She left the hospital very much improved but continued to suffer from the head pains, although in a much less degree. She was greatly encouraged. I directed that she continue her baths at home, to avoid undue excitements, and try to divert her thoughts into more wholesome channels. She must endeavor to lose herself and take up some congenial occupation. Twice each week she reported

at the office and while her annoying abdominal sensations had never returned, she feared that the terrifying head pains were gradually getting worse and she did not want to live if she had to suffer in that way. During the subsequent two weeks I searchingly scrutinized the girl's past history but utterly failed to discover a single clue. I finally accused her of purposely keeping back certain facts which I must know before she could get well. I told her that her cure was largely in her own hands and that if she would tell me all I was sure she would fully recover. She insisted that she was deeply interested in my efforts and was honestly striving to help me. I then explained to her how nervous conditions, such as she suffered from, frequently had their origin in the repression from conscious memory of disagreeable experiences which often dated back to childhood days, but she was perfectly sure that nothing of the sort had occurred in her case. Word tests were used from time to time but without success, and I was beginning to feel the pangs of defeat.

In a day or so I was called to the phone by this young lady and to my surprise she expressed a wish to see me at once. She entered the office crestfallen and forlorn. She said she had something to tell me but she did not know how she could do it. I secured her confidence by reminding her of the improvement that resulted in regard to the abdominal swaying, and she sobbingly described and lived over, with extreme distress, an experience which occurred when she was less than six years old, and which had long passed into oblivion. She had been calling on a friend that afternoon and happened to meet a young fellow who was her neighbor when they were both children. One day in her back yard he had attempted to take liberties with her, the particulars of which need not be related here. After a full discussion of the episode she left the office and from that day to this has enjoyed the very best of health. All her former distress has been removed and she is no longer concerned about herself.

The unravelling of this interesting riddle did not, according to Freud, constitute a complete psychoanalysis. Neither was the study conducted along systematic lines. I was able, nevertheless, to drag to the surface the long repressed ideational complexes which were the underlying causes of her nervousness and I doubt very much if she would ever have

recovered if the memory of this long forgotten painful experience had not been resurrected and adequately abreacted.

I therefore believe, as others have noted, that a modified analytical inquiry will suffice in a large number of cases, and that many psychoneurotic conditions are not as deeply embedded or as complicated as Freud and his disciples would have us believe. Insofar as a complete psychoanalysis is concerned, I consider it an impossibility. Even the mind of a child cannot be wholly revealed.

The new insight into human nature and the better understanding of the working of emotional states made possible by Freud's teachings seems to be of inestimable value and susceptible of confirmation to an unusual degree. It is indeed surprising what a useful touchstone has been placed at our disposal wherewith to recognize the actual motives which underlie apparent motives and underneath the faults and shortcomings, the fears and habits of adult life, to see the working out of the instinctive craving of imagination, pleasure-seeking and pain-shunning infancy holding back the individual from the fulfillment of his higher destiny.

I believe every physician would augment his therapeutic usefulness if he would gain a thorough understanding of abnormal mental traits and in order to do so he will find some of the teachings of Freud extremely helpful.

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EDITORIAL

Conference of Charities and Corrections.

The Conference which has just closed in Cleveland is of unusual importance to the medical profession on account of the increased interest which has been taken in the relation of medicine to charity. Better, perhaps, to say that the appreciation is officially gaining ground that preventive medicine and preventive charity must go hand in hand to get efficiency. That health depends to a large degree on surroundings is axiomatic, and that it is through sickness that the majority of people are forced to apply for help is also axiomatic, but the tendency has been for the physician and the charity organizer to go their own ways, helping where the lines obviously crossed, but without proper correlation. The Section on Medical Relations has taken this

question up specifically, and should be of great value. Unless through the physician it is known what are the diseases being bred by a set of local conditions the charity worker is seriously handicapped in meeting the emergency, and on the other hand the physician is unable to get general conditions ameliorated except in communities above the average of enlightenment unless he has the aid of the charities.

The fact that ignorance breeds disease is another of those statements which is so hackneyed as almost to cause disgust, yet the shock produced by the frank discussion of venereal diseases, which most of all have thriven on ignorance, is an indication that repetition of a general truth does not always aid in application to the concrete instance. The drink evil has been freely discussed for many years but the venereal disease evil, intimately associated as it is with the liquor question, has been considered unfit for speech or publication. It was accordingly interesting to see the relation of the sexual diseases to poverty and to ill health, and especially to the poverty and ill health of the innocent, taken up in such detail and in so many relations. As a well known bishop once said, while there is value in calling a spade a spade there is no need of calling it a damned old shovel, and there is no need of introducing these subjects at dinner parties and dances, but their removal from the sphere of things spoken of only with bated breath is of enormous value. There is no reduction in the inherent loathsomeness but no vice is as attractive when the seven veils of secrecy are removed and the actual results are brought into the light.

Another subject which is gaining ground year by year is the race improvement movement under the name of eugenics. The questions of race suicide, the survival of the unfit, the handing down of defects of one sort or another are of course mainly taken up by a conference of this sort with regard to the reduction of the wards of the state. The suggestion as to requirement of a medical certificate of fitness before marriage is perhaps the one most in favor, and while many objections can be urged against it it may be noted that the one most urged is a reproach to the medical profession, namely that venal doctors can readily be obtained to give certificates to any one. Such a contention is either an insult to the profession at large or else the profession at large is daily receiving without protest insults from its own members. Whatever the manner of administration

of such a prohibition and even if it be only successful in a limited part of the United States, it will bring the matter forcibly before the public, and should assist in arousing the conscience of many.

Conferences of this sort are very valuable to the communities where they are held, as they offer and indeed often develop a quite new point of view in many of the hearers, and the mere sight of so large a body of persons whose leading interest is the improvement of the conditions of the less fortunate is a stimulus to all who attend.

Medicines and the Patent Law

A "patent" is an agreement whereby a discoverer is guaranteed the exclusive right to his discovery on condition that at the end of a stipulated time the discovery be given to the public. In accordance with this principle our government protects discoverers of new medicinal substances for a period of seventeen years. Manufacturers of medicines, however, have tried to evade their part of the patent agreement—to make the discovery freely available to the public—by attempting to secure by means of a "trademark" permanent control of the name by which their product has become known. The success of this scheme was recently shown in a report of the American Medical Association Chemical Laboratory, discussed editorially in our March issue, from which it was apparent that the original owners of the patent on phenacetin are still asking five times as much for the product when sold under this name as the same firm asks for the same product when sold under its pharmacopeial title. From the report (*Jour. A. M. A.*, April 27, 1912, p. 1298) of a committee of the Council on Pharmacy and Chemistry which has begun a study of the effect of our patent and trademark laws on medicine it is evident that there are on record ample legal decisions which show that a name that during the life of a patent becomes the name of the substance cannot be protected under the trademark law. Instead it becomes the common name for the substance and as such can be freely applied to it.

The physician is not directly concerned with the excessive revenue which the discoverers of medicinal products are thus enabled to reap and it is for this reason that he has not kept informed. But he should remember that this possibility for ex-

cessive revenue has been responsible in part for the large number of extravagantly advertised medicinal products and thus has been a distinct detriment to rational therapeutics.

Since most physicians believe that names such as phenacetin, sulphonal and trional are the property of the original patentees forever and ever the druggist has felt bound to dispense the products of the original manufacturer and hence the physician through his unfamiliarity with the patent law or his tolerance of its abuses is largely responsible for the abuses which this unfair use of the patent and trademark law has brought about.

Mr. H. M. Hanna's Gift to the Babies' Dispensary and Hospital.

The announcement recently made by the Babies' Dispensary and Hospital of the gift of \$100,000 to this institution by Mr. H. M. Hanna is distinctly worthy of comment, inasmuch as it again demonstrates the sincere interest of Mr. H. M. Hanna in the development of medical education in Cleveland, and inasmuch further as it removes the building of the so urgently needed Babies' Hospital out of the dim future into a very clear present.

The Babies' Dispensary and Hospital is to be congratulated not only upon the receipt of so large and generous a donation, but also upon the fact that it was given by Mr. Hanna, whose judgment in making donations is universally considered sound and final. This means that Mr. Hanna positively feels that the Babies' Hospital is to be a factor in medical education, and this is what the officers of the institution have publicly stated as being their object, as can be seen from the following excerpt from the pamphlet of "The Proposed Babies' Hospital."

"Such a hospital is needed:

1. To care for the many infants who die in their homes without proper care, because the hospitals of our great city now provide a totally inadequate number of beds for babies.

2. To train physicians, nurses and nursery-maids, who will aid and advise the mothers. This represents, perhaps, the most important field of any in the practical reduction of infant mortality.

3. To provide facilities for research and study in regard to the causes of sickness and death among infants, about which so little is known today. It is because of the lack of facilities

for original investigation that today America takes so much of its medical knowledge second hand from other countries, especially Germany."

It is planned to raise One Million Dollars. This is a large sum of money but it is necessary in order to do the work as it should be done. Inasmuch as it is planned to include in the original amount not only the sum necessary for building and equipment, but also a very substantial endowment, the project cannot help but appeal to those generous citizens of Cleveland who are anxious to see their city and country develop along medical lines, but who are also desirous that new institutions which are built be able properly to care for themselves before being called into existence.

Two Hundred and Forty Thousand Dollars has, to date, been given or pledged and the remainder of the million will come soon if those who can will but visit the Central Dispensary and Milk Laboratory, erected only a year ago by Mr. and Mrs. J. H. Wade in memory of Mrs. Anna R. Wade, and inform themselves of the character and scope of the work already instituted. Every medical man in the city ought to learn to know this institution personally, for if he does he cannot help but become its earnest supporter and friend.

Mr. Hanna gave this gift to the Babies' Dispensary and Hospital in the memory of his best friend, the late Doctor E. F. Cushing, who first saw the importance of a Babies' Hospital and who, during his life, worked for it as only he could. The Hospital is to be built to the memory of Doctor E. F. Cushing, just as the Dispensary was built to the memory of Mrs. Anna R. Wade, as will be designated in the Hospital and in the Dispensary by appropriate slabs. The institution itself will continue to be known as The Babies' Dispensary and Hospital of Cleveland.

The Germicidal Value of Fuchsin Acetate.

Fuchsin acetate, commonly called "basic fuchsin," has germicidal properties, while fuchsin chlorid and fuchsin sulphate, commonly called "acid fuchsin" are devoid of germicidal effect. Since the fuchsin radical in these compounds is the same, and as the acetate, chlorid and sulphate radicals in themselves have no germicidal value, the germicidal value of fuchsin acetate needs explanation.

Fuchsin acetate is basic or behaves as a base because like other salts of acetic and other weak acids, it is decomposed by water (hydrolyzed) into the free base fuchsin and free acetic acid, and since free fuchsin is a stronger base than acetic acid is an acid, acts like a base. On the other hand the chlorid and the sulphate of fuchsin, in common with other chlorids and sulphates, are but slightly decomposed by water and have a slight acid reaction because these acids are stronger than the base fuchsin. An aqueous solution of fuchsin acetate acts, therefore, as if it contained the free base fuchsin and thus is different from the chlorid and sulphate which contain the fuchsin in the form of a salt.

In an attempt to find an explanation for the germicidal action of the base fuchsin and the non-effectiveness of the nonhydrolyzed salt solutions of it, the following hypothesis is advanced (*Jour. A. M. A.*, May 11, 1912, *p.* 1465): The free base is known to be unstable and to go over by a molecular change into a colorless derivative (a carbinol) of the same composition as the colored base, but of a different molecular structure. Acids convert the carbinol back into the colored base. This would indicate a continual change of structure of molecules in a solution of the acetate and these changes would involve the moving of electrons from position to position, and it is possible that it is this movement of electrons and the resulting forces that form the ultimate cause of the germicidal power. In other instances we find that similar changes of structure involve radical changes, such as color itself, fluorescence, etc.

This discussion reminds one forcibly that in the end the effects of medicines must be based on perfectly definite chemical properties and reactions and emphasizes the importance of a knowledge of the chemical identity and behavior of medicines.

Comment.

"Why Always False?—The antivivisectionists have a remarkable, almost unique record for mendacity. The cause is their inability, without violent distortion, to make any case at all. They are now putting out a pamphlet regarding the investigations of Dr. Hideyo Noguchi. This pamphlet undertakes to show by quotations from the doctor's own writings that he is infecting human beings with a horrible disease. Those engaged in

getting up the pamphlet must have known that the doctor was doing nothing of the sort. How, then, did they make their impression? Simply by carefully planned omissions and substitutions—by leaving out, for instance, the explanation that luetin is not a strain of living germs but an emulsion from dead germs and quite sterile, and that the procedure followed was a harmless skin test analogous to the von Piquet test for tuberculosis. What ultimate value can there be in a movement which finds it necessary to base its reliance on carefully studied lies?”—*Collier's*, June 1, 1912.

“Antivivisectionists May be Sued for Libel.—With their characteristic venom and disregard for facts, the Vivisection Investigation League has made itself responsible for the startling statement that Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research had inoculated 146 persons of pure blood with the poison of syphilis. The charges made were based on a paper written by Dr. Noguchi and published in the *Journal of Experimental Medicine*, December, 1911. Attorney Whitman and President Lindsay of the Society for the Prevention of Cruelty to Children have investigated the charges of the antivivisectionists, and their report characterizes these charges as “the most mendacious and malicious of slanders that has appeared in the long catalogue of misrepresentations for which the antivivisectionists are responsible.” It has been reported that possibly several suits for libel against prominent members of the Vivisection Investigation League may grow out of the matter.”—*Jour. A. M. A.*, June 8, 1912.

“Patent Medicine Courage.—After the prolonged and active fight on patent medicines, a few years ago, they became a little more cautious in various ways, especially regarding their attempted suppression of legislation. They are more confident now than they were just after that crusade. There lies before us a letter from the advertising counsel of the Chattanooga Medicine Company, addressed to the publisher of a newspaper in New Mexico. It calls attention to a bill introduced in the State Legislature. It gives the name of the man who introduced it and the name of the committee who were to pass upon it. It then puts the following words in red letters: ‘This will, of course, stop all advertising of proprietary medicines in New Mexico.’ The terrible threat was brought out by the fact that the bill aims to supplement the National Pure Food and Drugs Act by

preventing curative claims. The advertising counsel goes on: 'Won't you please take this important matter up at once with your Representative?' That sounds like old times—the combinations between the patent medicine company, with its millions to spend on advertising; the newspaper, which wants the advertising, and the legislator, who wants the support of the newspaper. It is no wonder, of course, that the courage of the patent medicine people should increase with Dr. Wiley's departure, and with the administration of the Pure Food and Drugs Act entirely in the hands of Messrs. Wilson and McCabe."—*Collier's*, June 8, 1912.

"Ignorance Versus Knowledge.—The Pennsylvania branch of the National League for Medical Freedom is sending out circulars attacking the medical inspection of school children, following the custom of the League wherever the question comes to a head. Meantime the fate of the Owen Bill is undetermined. The controversy between science on the one hand and ignorance and prejudice on the other is eternal. The *Titanic* has made a great impression, but more than 1,700 people are needlessly sacrificed every day in the year. It is estimated by experts that forty-two per cent of the 1,500,000 annual deaths are preventable."—*Collier's*, June 8, 1912.

Medical Quackery.—"That quackery is not the result of a high standard of professional education is proved by the fact that it is found in all countries whose laws permit unlicensed practice, whatever the level at which professional education begins. . . . No law can protect the ignorant and the credulous from all charlatans, but a rightly framed statute can make it impossible for the ignorant and illiterate impostor to carry on his gainful trade, and the exclusion of this class means an enormous protection for the whole people. In the United States, under the laws hitherto in existence, the quack is able to provide himself with the degree of doctor of medicine, sometimes by purchase, but oftener by attending a nominal course at some proprietary medical school, and he has not hitherto been compelled even to spend much time in acquiring this pseudo-degree. It remains now for the various states of the Union to enact such laws as will in the first place make it impossible for the medical charlatan to trade in the uncertain zone of the laws in nearby states, and will make it impossible as well for him to deceive the public by a medical degree which does not guarantee

genuine training. The law needs to go one step further and prescribe a minimum of general education—a step which would go further toward eliminating the professional medical charlatan than perhaps all other requirements. For such legislation those who are seeking to advance medical education and to render more useful the medical profession must rely upon the intelligent layman.”—*Henry S. Pritchett, President of the Carnegie Foundation for the Advancement of Teaching, in the Introduction to Bulletin No. 6, “Medical Education in Europe.”*

Department of Therapeutices.

Conducted by J. B. McGEE, M. D.

Pneumonia: In the *American Journal of the Medical Sciences* for May, J. T. Fotheringham, after summarizing the various methods of treatment of pneumonia, believes that a rational treatment should have in view the obviating of the three usual causes of death, namely, toxemia, cardiac failure, or some complication. As regards toxemia, the more modern methods of treatment seem to relieve this condition by free and early catharsis, for calomel and salines, or compound jalap powder are in his judgment best along with free diuresis. As to diaphoresis, hydrotherapy in the form of hot packs and mustard foot baths are safe and simple methods of securing free skin action, if thought necessary. Cardiac failure can best be prevented only if we clearly understand what is most likely to cause it. Toxemia and fever are the most important causes. Abdominal distention, as all know, is much to be feared for this reason, and the feeding, therefore, should be carefully considered. An excess of carbohydrates and of milk should be avoided. Constant pain tends to induce cardiac failure, and one of the worst features is restlessness, as well as delirium. Simple wakefulness is dangerous and should be controlled by morphin if necessary, but preferably by paraldehyde, one to two drams, or ammonium or sodium bromid, 40 to 60 grains, both given preferably *per rectum*. Strychnin should be given before cardiac failure threatens because, in addition to being a good and prolonged cardiac stimulant, it is a general tonic. It keeps the respiratory center awake and tends to prevent abdominal distention. As to the use of digitalis, he believes it of great usefulness when indicated. Oxygen, while probably more useful in bronchopneumonia or capillary bronchitis than in true pneumonia, has its place as a cardiac stimulant, and probably assists in reducing toxemia. He is opposed to the routine use of alcohol, but where indicated it should be used, and if used at all, pushed boldly for twenty-four hours, after which, if no improvement is noted, it should be withdrawn and caffenin or camphor dissolved in oil substituted. As to opiates, their use forms an important question and the main indications are severe pain, marked sleeplessness and restlessness and threatening cardiac failure. In the latter case very small doses are best, say 1-32 grain repeated.

Ductless Glands C. E. de M. Sajous, in the April number of the *Monthly Cyclopedia*, considers the subject of internal secretion in surgical therapeutics and concludes that the newer features are as follows: (1), Thyroid (including parathyroid) preparations,

owing to their power of increasing the opsonins and enhancing the germicidal and antitoxic power of the blood, are indicated in surgical diseases, septicemia, pyemia, erysipelas, etc., and in suppurative processes wherever situated, the organs of special sense included. (2), Being endowed with the property of enhancing calcium metabolism, besides acting as stimulants of the defensive process, thyroid preparations are also indicated in diseases of the osseous system (including those due to the tubercle bacillus in the spine and hip-joint): osteomyelitis, rachitis, etc. (3), Thyroid preparations are also indicated in those cases of larval myxedema in which convalescence after operation is slow, and the tendency to infection is great owing to inefficiency of the patient's defensive mechanism. (4), The fact that the parathyroids are the main source of the opsonins and that the latter increase the activity of the defensive process, emphasizes the importance of always conserving those organs when removing the thyroid, or of restoring them at once after their accidental removal. (5), The adrenals, as coworkers of the thyroid apparatus in the defensive process, and in sustaining oxidation, metabolism and nutrition, seem to offer a new clue to the pathogenesis and treatment of cancer that is worthy of further inquiry. (6), The adrenal secretion, especially when obtained from regions in which it occurs in organic combination, the stomach, the spleen and the pituitary for example, powerfully excites, as hormone, the contraction of unstriated muscular tissue. Hence the activity of the splenic hormone and pituitary body in postoperative paresis of the intestine and cardiovascular adynamia.

Pressure-lowering Drugs: In the *Archives of Internal Medicine* for April, Charles H. Lawrence, Jr., summarizes his conclusions as to the effect of pressure-lowering drugs and therapeutic measures on systolic and diastolic pressure in man. (1), The reduction of systolic pressure in cases of hypertension, by the use of nitrites, venesection, electricity or hot air, is accompanied by a fall in diastolic pressure amounting as a rule to approximately one-half the systolic fall. (2), Such a reduction produces a coefficient of pressure more nearly approaching the normal than does the coefficient under the conditions of hypertension. (3), Sodium nitrite reduces diastolic pressure more rapidly than the more complex compounds, thus causing a shorter initial diminution of pulse-pressure than is obtained with mannitol or erythrol. Its effect on the pulse is more marked than that of the other two drugs. The duration of its action is slightly less. (4), None of the nitrite group is efficient for maintaining a pressure at a permanently lowered level as a tolerance is soon acquired and increasing the dose is apt to cause unpleasant symptoms. (5), Venesection has a more lasting effect in lowering the pressure than any of the drugs considered. The diastolic pressure is depressed longer than the systolic, the pulse-pressure thus being increased. (6), The effect of hot air baths, electric light baths, and treatment with high-frequency currents is uncertain. A fall in pressure, if produced, is transient. (7), Vasotonin is not certain in its action and is not safe to use in cases showing marked hypertension, an increase of which might bring about untoward results. (8), In cases with permanent hypertension the effect on renal function of lowering the general pressure is an important and interesting point to be discussed in a later paper.

Tuberculin: In the *New York Medical Journal* for January 20, Solomon Solis-Cohen writes concerning the administration of tuberculin *per os*. Some few years ago Latham called attention to the feasibility of administering certain bacterins—so-called vaccines (that is to say, dead bacterial substance and bacterial products) by the mouth,

under guidance of a careful temperature record instead of the opsonic index. The advantages of gastric administration over subcutaneous injection, and especially the greater ease of control by chart over the laborious method of Sir Almroth Wright, are self-evident. Latham's careful clinical observations, checked by laboratory work with the opsonic index, showed that, in general, rise of temperature coincides with depression of opsonic index, and conversely, that rise of opsonic index is shown by fall of temperature toward or to normal, according to the case. Latham administers Tuberculin Residue (T. R.) in horse serum when the stomach is empty, hence preferably in the morning before breakfast. The horse serum is believed to aid absorption. Solis-Cohen has found diluted milk, whey and physiological saline solution equally available: and bedtime, under some conditions, an equally opportune hour for administration. Like Latham he has observed distinct reaction from very small doses (one one-hundred-thousandth of a milligram of T. R.) thus given. The advantage of early morning doses is that the time of the oncoming of the reaction can be more readily observed and charted; when the dose is given at bedtime the temperature may rise and the rise pass away during sleep unnoted. On the other hand the advantage of bedtime doses is that when a patient's reaction is well known to be mild and he is kept in bed from the time of administration till the morning of the second day (thirty-six hours), sufficient rest is obtained without the irksomeness of a second day's confinement. Obviously the method is applicable only with intelligent patients, or patients under the care of intelligent persons and in cases sufficiently mild to be treated outside of hospitals. The general rules of minimal doses progressively increased, with absolute rest during reaction time, must be observed in this as in all other methods. His own practice has been to begin with one one-hundred-thousandth milligram T. R. rubbed up with one gram of milk sugar; and to increase the dose by one one-hundred-thousandth milligram until reaction is evident. One dose is given every third or fourth day, unless for some good reason, as prolongation of temperature rise or excessive local or general reactions, its omission is necessary. After reaction is evident no increase of dose is made until the reaction inducing dose has been twice repeated without causing rise of temperature and so with each increment that again induces reaction—the dose must be tolerated at least twice before further increase is attempted. The maximum limit is fixed by the necessities of the case. He has thus far never exceeded one one-thousandth milligram, but should not hesitate, if it seemed necessary or advisable. Naturally the general and local symptoms are to be watched as well as the temperature. In conjunction with the gastric administration of tuberculin, he advises a highly nitrogenous (beef) and moderately fatty (olive oil) dietary, and uses such medications (iodoform, creosote or quaiacol compounds, calcium salts, arsenic, iron, etc.) as appear to be indicated from time to time in the special case.

Creosote and Calcium: In the *Medical Record* for May 11, Ira Van Gieson and H. L. Lynah, treat of the use of creosote and calcium medication in respiratory affections in children, and in pulmonary tuberculosis. There is nothing new in the treatment of bronchitis and lung affections with creosote, nor in its application to children. But there is something new and valuable, they think, in the use of creosote freed from its toxic and irritating elements. Everyone knows that the drawback of creosote is primarily its interference with digestion and its irritating effect upon the stomach, and that these effects too often counterbalance the good of this really valuable drug. Albuminuria and hemoglobinuria may also occur after large and continuous doses of creosote. The deleterious agents in creosote, it appears, are certain triatomic acid radicles. These radicles are first eliminated by

careful fractional distillation before emulsifying and mixing with lime salts in the form of calcium hypophosphite. The globules of the calcium creosote emulsion, which looks very much like milk, are about one-third the diameter of red blood cells and when the emulsion is mixed with human red blood cells there is no immediate hemolysis or laking. Some fifty cases of measles were treated by creosote and lime salts and a rather striking point is the tolerance of the drug by the children, and in addition the use of creosote in experimentally tuberculous animals was taken up. After nearly two years experience Van Gieson very earnestly recommends to the attention of every thoughtful physician Russell's generalization that lime starvation is the essential cause of tuberculosis, and as a corollary, the remedy is restitution of lime poverty by lime assimilation. He believes there is something about the conjunction of the creosote and calcium combination not attained by either factor alone. As to the fifty cases of children treated, they were as a rule three years old or thereabout, and at the onset of measles were given half dram or dram doses (which is the equivalent of one or two minims of creosote) in milk every two or three hours beginning the first twenty-four or forty-eight hours after the appearance of cough or other respiratory symptoms. After this the drug was given according to indications. In similar cases now, however, they would not wait for respiratory symptoms but give the drug as a matter of routine. For it does no harm and may forestall these complications, or at least temper and mitigate their severity. They would also add dilute hydrochloric acid to the milk, the cardinal lime-bearing food, and so perhaps avert the danger of tuberculous infection or its outcropping, which is notorious after measles. The addition of dilute hydrochloric acid does not interfere with the lime creosote emulsion. Nothing extraordinary or new is claimed for the effects of creosote in these children. As for the mild cases it is a question whether they may not have been given undue prominence, as they will get well under simple treatment, but the severe cases are quite another matter, as a conservative estimate is that 10 per cent of these have bronchopneumonia, and ominous respiratory complications, and another conservative estimate is that 5 per cent of these die of these complications. But two deaths occurred in their series of cases, and while they cannot claim that resolution of the bronchopneumonia occurred as a result of the medication, they have good reason for thinking that it corrected or mitigated the complications.

Strophanthin: The April number of *Merck's Archives* comments editorially on strophanthin in heart disease. True cases of cardiac insufficiency where all preparations of digitalis given by mouth will fail are not common. The oral administration of the drug is very unsatisfactory in chronic insufficiencies accompanied by swelling of the liver and with but slight or no edema. In these cases the liver, stomach and intestines are in such condition that the absorption of the glucosides is difficult. In such cases the intravenous use of heart tonics is in place and may be truly life saving. Albert Fraenkel has extensively employed the amorphous strophanthin and has obtained excellent results where digitalis by oral administration could not be resorted to. The glucoside is indicated in acute cardiac weakness where digitalis by mouth would act too slowly; in the hepatic type of chronic insufficiency where digitalis by mouth would probably be vomited or ineffective; in all cases of chronic insufficiency where it is desirable to improve more rapidly some distressing symptom, as severe dyspnea. If the improvement after the first injection is slight a full effect will generally be obtained after the second. Even where there is no pronounced objective improvement the patients will usually experience a decided benefit in that one or more distressing symptoms are ameliorated. The initial dose should be 0.5 milligram (1-30 grain.) If this is well tolerated the same amount may be given in twenty-

four hours. The dose is increased cautiously to 0.75 and 1.0 milligram (1-80 and 1-60 grain). The interval between the injections should never be less than twenty-four to thirty-six hours. In the beginning of the treatment three to four injections per week will be necessary; later one to two every eight days will generally suffice. If used in this cautious manner the drug is not dangerous and no after effects will be noticed. In the few cases reported where the drug proved dangerous digitalis had been given by the mouth before intravenous therapy was resorted to and a cumulative effect was obtained. In treating a new case it is, therefore, of the greatest importance to determine what the previous medication has been. The interval between injections should never be less than twenty-four hours, particularly if the effect of strophanthin is still evident in a bigeminal pulse. Chronic nephritis and uremia are no contraindications but with excessively high arterial pressure only small doses should be employed. In the severest cases of cardiac insufficiency only small doses should be employed, and it is advisable to begin with 0.25 milligram (1-240 grain). Small doses should also be given to the aged, or in advanced arteriosclerosis. As a cardiac stimulant, strophanthin is undoubtedly superior to caffeine, camphor and all other drugs, with the possible exception of epinephrin which have heretofore been the last resort in circulatory failure, and the effect is also more lasting. The advantages to be gained from the use of the glucoside intravenously are the rapidity of action, the certainty of the effect, and the absence of intestinal disturbance in most cases. Among antidotes are mentioned staphisagrin, atropin, camphor, picrotoxin and mustard plasters. Robert A. Hatcher states that atropin in small doses and mustard plasters may possibly do some good, but that picrotoxin and staphisagrin would be likely to add to the danger.

Cardiac Therapeutics: The March number of the *Medical Review of Reviews* contains a series of "donts" in cardiac therapeutics. Don't allow a patient with an uncompensated valve lesion to be out of bed. Don't let a child or young person with chronic valve disease get out of bed until compensation has returned to the heart, and circulatory equilibrium has been maintained for at least one month. Don't keep elderly patients with myocardial degeneration in bed longer than is absolutely necessary to secure adequate compensation. Don't give children digitalis unless there is absolute indication for its use. Don't ever give digitalis to old people as a routine measure. Don't give digitalis to a patient with fatty heart, or with any form of pronounced chronic myocardial degeneration. Don't persist in giving digitalis in chronic valvular disease if the symptoms are rendered worse by its use. Don't start in with digitalis in mitral stenosis. Don't give digitalis, strophanthus or any other cardiac stimulant unless rest in bed fails to induce a return of compensation. Don't forget that digitalis, strophanthus, strychnin and caffeine are the most effective heart stimulants and that nearly everything in the line of heart stimulation can be accomplished by chemicals if they are correctly exhibited. Don't use nitroglycerin in cardiovascular disease to reduce blood pressure if the kidneys are much sclerosed, but do not fail to use it freely if coronary sclerosis is present. Don't forget that individual susceptibility to strychnin varies greatly and that it is not generally safe to begin with more than 1-60 grain every four hours; and that the maximum dose in diseases of the heart is generally not more than 1-30 grain every four hours. Don't prescribe passive movements as part of the treatment without watching very carefully to see that they are not given too vigorously. Don't expect to get compensation in a bad case too soon; be satisfied if the patient shows slight improvement immediately; permanent improvement must be slow if it comes at all; and attempts to hurry it unduly may prematurely exhaust the heart.

Review of the Progress of Medicine.

The Methods of Study of the Cerebrospinal Fluid and Their Value in Diagnosis and Therapeutics.

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Until the year 1900, when Widal, Sicard and Ravaut first pointed out the diagnostic value of cell increase in the cerebrospinal fluid of patients suffering from various types of nervous and mental disease, lumbar puncture had been used as a diagnostic and therapeutic measure only in meningitis, a procedure first introduced by Quinke nearly ten years previously. Since 1901 there have been numerous and extensive studies of the cerebrospinal fluid, so that Kaupe in a collective review, found 487 references from the literature of 1904-5-6 alone. Even now, however, lumbar puncture with a thorough study of the cerebrospinal fluid, in this country at least, is not done as frequently as it should be. The operation of lumbar puncture is so well known and described in numerous text-books that any detailed description would be entirely superfluous. No untoward results follow if the precaution is taken not to draw off too large a quantity of fluid, to keep the patient in bed for twenty-four to forty-eight hours, and to perform the operation with the patient lying on the side and not in the sitting posture as is so often described. Cushing has called attention to the occurrence of sudden death, where lumbar puncture was performed in cases of subtentorial tumors, so that it should not be resorted to as a diagnostic measure in these cases. The normal pressure of the cerebrospinal fluid according to Kronig averages 125 Mm of water in lateral decubitus and 400 in the sitting posture. A simple method of estimating the pressure has been devised by Eve. He uses a lumbar puncture needle which is attached on the one hand to a vertical graduated glass tube and on the other to an exit tube closed by a spring clip.

The following points are noted in the examination of the fluid: (a) The appearances, amount and pressure of the fluid. (b) The number and character of the cells. (c) The proteid content.

The cytological examination is the most important, so much so that the term "cytodiagnosis" has been used to cover the entire technique. Until recently the centrifuge method of Widal and Ravaut has been used to collect the cells in sufficient numbers for microscopical study. This, in brief, is to take a certain amount of the fluid and centrifuge at high speed, decant, and spread the remaining portion on a slide, fix, stain, and estimate the number of cells found in a one-twelfth inch oil immersion field. This method is open to serious objections as the results may vary in the hands of the same observer and it offers no possibility of accurate comparison with the results of others, because the speed and duration of the centrifuging, the manner of decanting and spreading, and the counting itself all may vary so far beyond the limits of permissible error. Further, the bruising to which the cells are subjected causes all manner of distortions and seriously interferes with the staining so that it is often impossible to distinguish the different cell elements. Laignel and Lavastine in 1901 made the first advance towards greater accuracy by introducing the use of the ordinary blood counting slide, but, as they first centrifuged, their results are largely open to the objections stated above. In 1904 Fuchs and Rosenthal introduced a more accurate method. They used a slide similar to the ordinary blood counting slide except that the measurements were greater, the depth being 0.2 Mm and the rulings 4 Mm on a side or containing 3.2 Cmm. The pipette is the same as the ordinary leucocyte counter. The staining diluent consists of methyl violet 0.1, glacial acetic 2 and distilled water 50 parts. As soon after the puncture as possible the stain is drawn up to the 1 mark on the pipette, then the latter is filled to the 11 mark with the uncentrifuged fluid and then shaken

from three to five minutes. The first two drops are discarded and the third used for counting. The whole field is counted over in at least two slides and the average obtained. The number of cells in the cubic millimeter is calculated from the formula $X=11a/32$ in which a is the total count and X the actual number in one cubic millimeter or approximately $X=a/3$. Henderson has found the following standards satisfactory: (1) Less than 5 cells per Cmm, negative; (2) From 5 to 10 doubtful; (3) Above 10 pleocytosis.

In 1907 Alzheimer perfected the most satisfactory method that has yet been used for the study of the different types of cells in the cerebrospinal fluid. Lumbar puncture is performed in the usual manner and 96 per cent alcohol in proportion to twice the amount of cerebrospinal fluid is added drop by drop and well mixed. The mixture is centrifuged for one hour at high speed. The supernatant fluid is poured off leaving a small coagulum in the bottom of the tube. Add absolute alcohol, alcohol and ether, ether, each separately for one hour, to dehydrate and harden the coagulum. The latter is embedded in celloidin and sections cut at 14 micra and stained with Pappenheim's pyronin-methyl green, or Unna's polychrome methylene blue. This method has been used very satisfactorily by Cornell, Cotton and Ayer and others. By this procedure certain types of cells—lymphocytes, endothelial cells, phagocytes, plasma cells, "kornchen" cells, polymorphonuclear leucocytes and certain undifferentiated cells—can be distinguished.

The proteid content of the cerebrospinal fluid is increased in certain inflammatory conditions of the meninges. In general paralysis the amount is often four times the normal. To estimate it originally a nitric acid ring test was used, similar to Heller's nitric acid test for albumin in the urine. Within recent years, more delicate tests have been devised which demonstrate a special kind of proteid called globulin. The three tests most commonly used are (1) The Nonne-Apelt, (2) Ross Jones, and (3) Noguchi's butyric acid test. The Nonne-Apelt test consists in mixing together by shaking equal quantities of a supersaturated solution of ammonium sulphate and cerebrospinal fluid. A case is said to give a positive reaction should a cloudiness arise within three minutes.

The Ross Jones Test is performed as follows: 2 Ccm of a saturated solution of ammonium sulphate are placed in a test tube and 1 Ccm of the cerebrospinal fluid is gently run on to the surface in the way done in the Heller nitric acid test for albumin. The formation of a ring at the junction of the two liquids constitutes a positive reaction. The ring is clear cut, thin, greyish white and has the thickness of a thin piece of paper. It should form within three minutes, and within half an hour it may be observed that the surface of the ring shows a delicate meshed appearance resembling a fine cobweb. Indirect illumination must be used or it may escape detection. For this purpose they have constructed a black lined box into which the test tube can be inserted and viewed at right angles to an electric bulb, which is fixed within the box a few inches away. In applying the test it is essential to see, first, that the ammonium sulphate is pure, so that the solution is neutral and not acid, and secondly that the solution is quite saturated, which is best ensured by the use of heat.

The Noguchi butyric acid test consists in mixing 0.1 or 0.2 Ccm of the spinal fluid with 0.5 Ccm of a 10 per cent butyric acid solution in physiological salt solution. These are heated over a flame and boiled for a brief period. To the heated mixture is quickly added 0.1 Ccm of normal sodium hydroxide. It is necessary to take the precaution to employ for the test only cerebrospinal fluid entirely free from blood. The presence of an increased content of protein in the cerebrospinal fluid is indicated by the appearance of a granular or floccular precipitate, which gradually settles to the bottom of the tube, beneath a clear super-

natant fluid. The velocity and intensity of the reaction vary according to the quantity of the protein contained in a given specimen. In obtaining the reaction the time limit should not be greater than two hours. The Wassermann reaction or its Noguchi modification has been utilized by many observers in the study of the cerebrospinal fluid. The details of this reaction are to be found in numerous text-books.

The bacteriological examination of the cerebrospinal fluid is of great value in the diagnosis of infections of the meninges with meningococcus, streptococcus, pneumococcus or other organisms. This includes not only an examination of coverslip preparations from the fluid but also determining the cultural characteristics of the bacteria on various media. To demonstrate the bacilli in tuberculous meningitis the best method is to allow the fluid to stand for twelve to twenty-four hours at body temperature, by which time a fine coagulum has usually formed. This is removed by a needle, spread on a slide, fixed and stained in the usual manner. By this method the tubercle bacilli will be found in 80 to 90 per cent of the cases. In doubtful cases inoculation experiments on guinea pigs are of value. In cases of fractures at the base of the cranium or in hemorrhages into the ventricles of the brain the presence of blood in the cerebrospinal fluid is of great assistance.

Halliburton, Rosenheim, Mott, Hebb and others have investigated the presence of cholin in the fluid in cases of organic degenerative diseases of the nervous system. Cholin may be demonstrated by crystallizing it as a combined platinum salt. This test, however, is too complicated for ordinary clinical work.

Lumbar puncture with a careful study of the cerebrospinal fluid yields much information of diagnostic value. In subacute and chronic affections of the meninges, whether tuberculous, syphilitic or otherwise, also in chronic degenerative diseases of the nervous system, we usually find a lymphocytosis, i.e., an excess of small mononuclears, sometimes accompanied by a small proportion of large mononuclears. There is often a marked lymphocytosis during an attack of herpes zoster and in lymphatic leukemia. This will serve to distinguish organic from functional nervous diseases. The most striking lymphocytosis is seen in tabes and general paralysis of the insane.

As a therapeutic measure lumbar puncture may be used as first introduced by Quincke, to relieve intracranial pressure in tuberculous meningitis, intracranial tumors, uremia and puerperal eclampsia. In the epidemic form of meningitis lumbar puncture is performed and a measured amount of spinal fluid withdrawn previous to the injection of Flexner's serum.

In conclusion attention may be drawn to the injection of anesthetic drugs by thecal puncture, so-called spinal anesthesia as practiced extensively by Jonnesco and others.

Pharmacotherapy.

This department will contain notes on important official drugs, the descriptions of new articles accepted by the Council on Pharmacy and Chemistry of the American Medical Association, and discussions of allied topics of current interest.

Some Official Drugs and Preparations.

One of the foremost aids in the relief and cure of sickness and disease is the mastery of drug combinations. Many drugs act best alone but in other cases a drug's action is greatly augmented by being combined with others to assist its action, to correct any undesirable action or to make a more palatable mixture.

A study of the compound preparations in the Pharmacopeia and the National Formulary affords examples of such methods of combination and will greatly aid the medical practitioner in devising his own prescriptions.

Castor Oil Emulsion.

An example may be taken in Castor Oil, which well illustrates two points: First, its disuse by many physicians owing to its objectionable taste, and second, how to overcome this taste by combination. Castor Oil is a valuable remedy and in making a palatable dose, we "kill two birds with one stone," namely, we save to the profession a valuable drug, and we also prouduce a mixture agreeable to the patient.

In the National Formulary there is official an Emulsion of Castor Oil (Emulsion Olei Ricini, N. F.), which is a very fine and palatable preparation. It contains 32 per cent of Castor Oil, emulsified with Acacia and Water, sweetened with Syrup and flavored with Vanilla. Usually the pharmacist may be allowed to use his discretion in preparing a palatable mixture of this nature, but it is well that physicians be familiar with the contents of such. Close co-operation with the pharmacist is of great benefit in such cases.

A Castor Oil Prescription.

The physician may desire a different emulsion than the N. F. preparation yields and in that case he might prescribe Castor Oil emulsified with yolk of egg and flavored with Ginger and Cinnamon. Such a preparation would appear as follows:

Olei Ricini	1 ounce
Vitelli	1 ounce
Syrupi Zingiberis	4 drams
Aquae Cinnamomi, ad.....	4 ounces

Peru and Iodoform Ointment

Neither lard nor petrolatum alone will make a good ointment with these drugs (which might be prescribed for bedsores), but if a little Solid Petrox (Petrolatum Saponatum Spissum, N. F.), Castor Oil or Wool Fat be added a very fine ointment will result.

Asafetida Mixture.

Asafetida may be indicated when the physician is loth to prescribe it. Its horrid taste, combined with the fact that this drug formerly was only of indifferent quality, has placed this therapeutic agent on the back shelf as useless. However, the quality has lately much improved and by specifying the drug of the Pharmacopeia, a good article may be secured. Palatability is secured by prescribing as fololws:

Asafetidae, U. S. P.....	5 drams
Syrupi Tolutani	3 ounces
Tincturae Vanillae	2 drams
Olei Anisi	30 minims
Aquae Cinnamomi, ad.....	16 ounces

The average dose of this would be one tablespoonful. When such a prescription is handed the pharmacist, he will proceed and make an emulsion of the Asafetida with Cinnamon Water. The flavors and sweetening are present in such a mixture to produce a very satisfactory preparation and one that is palatable.

Phenolphthalein Elixir.

The case of Phenolphthalein offers another instance where a special prescription is most valuable. This drug is often prescribed in the objectionable tablet form and also appears in the form of a specialty under various fanciful names. By combining it with aromatics as in the follow-

ing prescription a palatable and most active therapeutic mixture may be obtained.

Phenolphthalein	3 drams
Alcoholis	1 ounce
Elixir Taraxaci Composti	2 ounces
Elixir Aromatici, ad	8 ounces

This elixir contains nearly 3 grains of Phenolphthalein to a teaspoonful dose. The dose, may of course, be varied as required.

The drug may also be prescribed with chocolate syrup, which yields a most excellent and palatable preparation; also as a compound pill prescribed with small quantities of the extracts of Cascara Sagrada, Nux Vomica, and Belladonna. Instead of the pill form, the mixed powders may be enclosed in capsules.

Academy of Medicine of Cleveland.

ACADEMY MEETING

The ninety-second regular meeting of the Academy was held at the Cleveland Medical Library, Friday, May 17, the President, J. V. Gallagher, in the chair.

The program was as follows:

- 1, The Relation of the Children's Fresh Air Camp to Cleveland Charities, by Robb O. Bartholomew, Attorney-at-Law. The Children's Fresh Air Camp is the outgrowth of the work of a single individual among the children of the more congested districts of the city. Today it represents a property investment of over \$150,000; it cooperates with all the other charities of the city and is the medium through which all the outing work of the city is done. During the summer it cares for sickly children and for those who have or are exposed to tuberculosis; it receives the mothers of sick children; and it arranges outings in the country for the children of the congested districts. The medical work is directly under the charge of a board of supervising physicians, who donate their services. No charge is made for any of the work done for the children; but by investigation of the social condition of applicants through the down-town office at Goodrich House, only those who are extremely needy and worthy of help are selected. After such an investigation has shown the child to be a proper recipient of help examination is made in regard to contagious diseases. If the child is accepted after these preliminaries it is received at the Camp, where it remains for two weeks. The creepers' cottage accommodates thirty infants of the day nursery type. The camp hospital has accommodations for forty, the ages of most of the patients ranging from a few days to fifteen months. The tuberculosis tent colony now cares for thirty children, five to fifteen years old, during the entire year; it is hoped to increase the all-year accommodations for such children to one hundred. The mothers' camp consists of six house tents, in which there are always as many mothers with their children as can be cared for. The outing department, organized a few years ago to meet a demand which could not be met by the Camp itself, arranges for the sending of children to homes in the country for two week periods; last summer 635 children were cared for in 259 homes.

J. H. Lowman, in discussion, said that the Fresh Air Camp has always been managed in a broad way, the cooperation with other charities being especially noteworthy. It is regrettable that the Camp, with its large investment, can be used only three months of the year; the endowment should be increased so that the Camp might remain open the entire year. Physicians ought to offer more support to attempts at social betterment. Charities like the Fresh Air Camp would be stronger if they received better support from the medical profession. Cooperation be-

tween the various charities themselves seems to be better developed in Cleveland than elsewhere.

2, The Work of the Bureau of Tuberculosis under the Health Department, by R. H. Bishop, Jr. In 1907 the notification of tuberculosis was made compulsory, but for three years the work was largely clerical. Not until 1910 were sufficient funds provided properly to organize the work with physicians, nurses and clerical assistants. In no other city is anti-tuberculosis work so greatly centralized in the Health Department as in Cleveland. The district plan of dispensaries has been established and has been found more satisfactory than the single central dispensary. The chief aims of the dispensaries are diagnosis, investigation of home conditions and education of the patient and his family. All families are visited every two or three months for a period of two years after a death in the family from tuberculosis. The dispensaries act as clearing houses for the tuberculosis sanatorium and hospital; one difficulty in the work of the Bureau has been that physicians do not know how to cooperate with the Bureau in regard to the admission of cases to the sanatorium at Warrensville or to the City Hospital. (To be published in full later).

C. E. Ford, in discussion, said that the work described is only another example of that cooperation in charitable endeavors to which attention had already been called. Most remarkable in the work is the large proportion of cases dying of tuberculosis which have been visited before death.

J. H. Lowman said that previous work has had no effect in reducing the mortality from tuberculosis. Reduction in the mortality rate requires thorough organization, such as has been effected through the local Board of Health. Problems still to be attacked are the contumacious and criminal consumptive, and the hospital care of advanced cases. The hospital care of advanced cases of lung tuberculosis is very poor throughout the country.

J. C. Placak had found the problem of tuberculosis among school children a large one. Many children are anemic and in poor physical condition; they are especially liable to tuberculosis and for their care not sufficient means are available; the Fresh Air Camp and the open air schools can take care of only a very small proportion. Because there is not sufficient hospital room for advanced cases healthy children are rendered liable to infection in the home. Legislation is needed which would render possible the segregation of intractable consumptives. Immigration should be restricted.

R. H. Bishop, Jr., in closing, said that one of the endeavors of the Bureau was the getting into touch with immigrants and new arrivals of the lower classes for the purpose of determining whether infection exists and of giving instruction for preventing infection.

3, Cleveland's Maternity Dispensary System, by A. J. Skeel. The dispensary should represent a union between the medical worker and the trained social worker, and the work of both must be above suspicion. The aims of dispensaries and hospitals are the relief of suffering, the teaching of medicine to students and the teaching of specialized workers. The dispensary must seek to meet these aims and at the same time it must prevent dispensary abuse and the acquiring of habits of pauperism. In maternity dispensaries a further factor, the midwife, must be considered. Education of the lower classes increases the demand for the services of the well trained physician and lessens the demand for the midwife. In maternity work the visiting nurse has been of great help in the education of the pregnant woman, and through her it becomes apparent that the midwife problem must be met by the elimination of the midwife rather than by her education. All worthy cases needing obstetrical care are reported to the District Visiting Nurses' Association, which investigates each individual case through the Charities Clearing House and re-

fers it to the proper maternity dispensary. Of value in maternity dispensary work is the affiliation of the dispensary with the hospital; this has led to an altered feeling upon the part of the more ignorant classes toward hospitals. (To be published in full later).

J. J. Thomas, in discussion, said that at a recent meeting of the Board of Health it had been stated that over 40 per cent of the births reported had been cared for by midwives. He did not believe that the midwife can ever be completely eliminated, but her number can be decidedly reduced through well organized maternity dispensary work.

A. J. Skeel, in closing, said that the one factor which will help in the elimination of the midwife, especially in Cleveland, is the splendid co-operation between various charities and organizations.

4, School Inspection: A Statement of the Work as Conducted by the Doctor, by M. Coplan. There has been lay, medical and pedagogical criticism of medical school inspection in general and that in Cleveland in particular. Unprejudiced examination will show that the problem of the upbuilding of the public health can be best attacked through the child, and the care of the child can be undertaken only through properly organized medical inspection in the schools. In the work in Cleveland the city is divided into fifteen districts, each with about 5,000 school children. For each district there is a physician and a nurse. The inspector spends daily from three to three and one-half hours in the schools of his district; he visits all rooms daily, makes a general inspection and a detailed inspection of as many children as possible. Defects are noted upon a card and the parents are notified that the child should receive care from the family physician or dentist. The nurse is not permitted to recommend any doctor or mention him by name. If the nurse's examination of the home conditions shows the family to be indigent the nurse takes the child to a dispensary. Almost 60 per cent of the children of the public schools of Cleveland have been found defective in one way or another; in some districts the percentage is as high as 90. Correction of defects has been found to lead to better physical condition of the child and to increased mental activity. In addition to the district inspectors there are certain special inspectors; one physician has charge of all ocular cases; another has charge of all anemic and tuberculous children; another examines all the mentally defective and backward children. The nurse attends to all the clerical work of the records and notifications; without this aid of the nurses school inspection would not be possible. Medical inspection work is difficult and its value can be measured only by the good done, and not by the salaries paid the inspectors. There should be closer cooperation between the Academy of Medicine, the local profession and the Department of Medical Inspection of the schools.

L. W. Childs, in discussion, said that most of the troubles which medical school inspection has encountered in Cleveland are due to a faulty understanding, upon the part of the profession, of the referring of cases found to be defective. Failure to have defects corrected is another difficulty. Especially in the correction of ocular defects it is found that many cases fall into the hands of commercial opticians; it might be better if the inspectors were permitted to refer cases to oculists by name. The school inspection work has been of value in increasing the knowledge of general hygiene. The improvement of the children in the fresh-air schools has been marked and leads to the belief that the treatment of tuberculosis in the child is a more simple matter than in the adult.

J. C. Placak said that the improvement in the fresh-air schools has been remarkable. The gain in weight and mental activity has been general and uniform. The ventilation of the schools in general has been bettered and it has been found that in those rooms where the ventilation is worst the condition of the children is poorest.

CLINICAL AND PATHOLOGICAL SECTION.

The eighty-sixth regular meeting of the Section was held Friday, May 3, at the Cleveland Medical Library, the Chairman, H. L. Sanford, in the chair.

John Phillips presented a case of apparently spontaneous disappearance of gummata. The patient, a white male aged 36 years, at a previous admission to the dispensary, had a nodular swelling over the seventh right rib in the nipple line, the liver was nodular and the spleen was enlarged. The Wassermann reaction was positive. Eight years previously the patient had had a chancre. The patient left the dispensary and disappeared. Recently he returned. The gumma of the rib has disappeared and with the exception of one palpable nodule the liver is smooth. The patient claims that in the intervening time he has not had any medicine. At present there is a slight thickening and tenderness over the manubrium. The spleen is still enlarged. There is no evidence of amyloid nephritis.

John Phillips also showed a photograph of a case of congenital bilateral absence of the clavicular portions of both pectoralis major muscles.

The regular program was as follows:

1, Presentation of Neurological Cases. W. B. Laffer presented the following cases:

Case I: The patient, a white male, laborer, 48 years old, has been under observation since 1898. The family history is negative. In the past history there are to be noted the diseases of childhood and an attack of typhoid twenty-eight years ago. Abnormality of the sense of smell has been present for the past fourteen years. There has been unsteadiness in the dark during the past twelve years. When the patient was first seen in 1898 the pupillary reaction was absent and there was wasting of the muscles of the shoulders, arms, forearms and hands. This condition was first noticed in the hand and forearm and was marked three years after the attack of typhoid. There was much muscular wasting and inability to walk immediately after the typhoid. The abdominal, thigh and leg muscles were weak. The bicipital, wrist and knee jerks were absent. The lower extremities were anesthetic to the knees, the upper from the elbows down. A year after the first examination there was increased muscular involvement. At the present time there is loss of all forms of sensation in both hands extending to the elbows and a loss of all forms of sensation from the patellae down both legs and feet. The reaction of degeneration is present. Lumbar puncture fluid and the Wassermann reaction are negative. The atrophy in the case makes it look like progressive muscular atrophy, but an exact diagnosis is difficult owing to the sensory loss. The amount of sensory disturbance is greater than one expects in muscular atrophy. The possibility of syringomyelia must be considered, but against this is the improvement which has occurred during the past two or three years. (To be reported in full later.)

Case II: A girl six years old. Birth was easy and there is no apparent connection between the delivery of the child and her present condition. She did not walk until twenty months old; she began to talk at two years. When two and one-half years old she had a mild attack of scarlatina. At this time she had been walking and the gait was normal, except that she was said to fatigue more easily than normal. Six months after this illness she showed a tendency to walk on the toes. There has been progressive involvement of the muscular action of the legs. During the past six or seven months some unsteadiness of the right hand has been noticed. The lordosis and the action in arising make one think of progressive muscular dystrophy. The reflexes are increased and the extensor reflex of the big toes is present. In regard to the diagnosis the question is whether the case is one of progressive muscular

dystrophy or paraplegia following scarlatina. Congenital bilateral dislocation of the hip has also been diagnosed.

Case III: Osteitis deformans (reported in full on page 401).

W. G. Stern, in discussion, did not think that the X-ray plates of the long bones in Case III indicate Paget's osteitis deformans. In Case II the gait was not that of bilateral dislocation of the hip. There was a tendency toward the scissors gait of spastic diplegia, but the walk was not quite typical. The condition may be due to the scarlet fever.

2, Presentation of a Case of Thomsen's Disease, by C. W. Stone. The patient, a white male aged 18 years, was well until two years ago, when he suddenly noticed that he had difficulty in using his arms and legs. The difficulty was one of putting into action some desired movement. The patient now has the myotonic disorder characteristic of Thomsen's disease; sudden attempts at movement are followed by momentary tonic cramps of the arms and legs. The characteristic electrical reaction, a slow, wave-like, tetanizing response to both galvanic and faradic stimulation, is present. The arms and forearms are considerably atrophied, while the thighs and calves are markedly hypertrophied. The latter condition and the way in which the patient arises from the lying position are suggestive of pseudohypertrophic muscular dystrophy. Possibly this condition is associated with Thomsen's disease, which is certainly present. (To be reported in full later).

W. B. Laffer, in discussion, asked whether any other members of the family are similarly affected; and whether there is any difference in the electrical reaction of the upper and lower extremities, since the difference between the atrophy of the former and the hypertrophy of the latter is so striking.

H. H. Drysdale inquired whether hypertonus of the muscles of the eyes or face is present. He recalled a case of Thomsen's disease in which, after sudden yawning, it was impossible to close the mouth for a considerable period.

C. W. Stone, in closing, said that no other member of the family has anything similar. The electrical reaction of the upper and lower extremities is the same, although more marked in the legs. The patient feels that the condition began in the legs and arms at the same time. When the atrophy of the arms and the hypertrophy of the legs began cannot be determined. In regard to involvement of the muscles of the eyes or face, the patient says that in cold weather he has difficulty in opening the eyes.

3, An Apparently Successful Psychoanalysis, by H. H. Drysdale (published in full on page 429).

W. B. Laffer, in discussion, believed that Freud's method has great usefulness when applied in proper cases. He recalled a case in which an obsession in regard to the washing of the hands was found to date back to a phlebotomy witnessed years before; analysis revealed the connection and has overcome the obsession.

Herman Shube said that the Jew, because of his highly religious nature, is the personification of hysteria. He believed that half of the diseases of Jews are of psychasthenic origin. In the case reported he doubted that a permanent cure had been obtained because it is impossible to eradicate the hysterical taint.

H. H. Drysdale, in closing, said that he believed that in younger people hysterical fears can be removed by analysis; cases of more advanced age seem to be less amenable to the method. He agreed that the hysterical constitution might remain after an apparent cure and that an hysterical overthrow might occur again later.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixtieth regular meeting of the Section was held at the Cleveland Medical Library, Friday, May 24, the Chairman, W. E. Bruner, in the chair.

C. C. Stuart presented a case of double perforation of the eye-ball reported at the last meeting and published in *The Journal* (page 275). The case was especially interesting as showing the recuperative power of the vitreous. At the time of the injury there was much floating opacity in the vitreous, but at the present time the medium is clear.

C. C. Stuart presented a case of a rare form of keratitis. It complied in many respects with the description of Fuch's disciform keratitis. The process for the most part was situated in the layers of the cornea; the surface of the cornea, however, stained at times with flourescin. It was thought that there were two processes at work, one on the surface and one within the substance of the cornea. No definite diagnosis had been arrived at.

Edward Lauder reported two cases of glaucoma treated by trephining at the sclero-corneal junction. In both cases a prolapse of the iris took place and a permanent incarceration resulted in one case. In the case in which incarceration of the iris did not take place there was a previous posterior synechia. The result in both cases was very satisfactory. There was a decided drop in tension in both cases. One case was of the chronic form, the other acute. In the former the result was a little better than in the latter. W. E. Bruner believed that the operation was more suited for the chronic form of glaucoma and that the older operation of iridectomy still met with the greatest favor. Edward Lauder said that the operation was so simple and the injury to the eye so slight that it would become the operation of choice in a larger number of cases. He also called attention to the cosmetic effect, which was much better after the trephining operation.

MEDICO-PHARMACEUTICAL SECTION.

The Section met Friday, May 24, at the Cleveland Medical Library, the Chairman, J. B. McGee, in the chair.

The program was as follows:

1, "Pills and Other Drugs" versus "Drugless Medication," by Nathan Rosewater. In the tendency toward the condemnation of drugs and the exclusive praise of other forms of treatment we are apt to lose sight of the fact that the body is its own laboratory and manufactures many substances and compounds for the repair of tissues worn out by waste and disease. The aim of proper treatment is to use whatever will help the body in the conquest of disease, and the general condemnation of all forms of drug medication because certain forms of drugless therapy have been found helpful is to be deplored. From all the remedial agents available, mechanical, surgical, psychical, medical, etc., the practitioner must select those which will prove most helpful in any given case. The wrong use of a therapeutic measure is to be condemned, not the measure itself. It is necessary, therefore, to teach the value of drugs properly used. The responsibility for the results of treatment rests upon the physician and he must be permitted to use whatever in his judgment is best. Every new drugless method of treatment does not decrease the value of drugs properly used, but only adds another therapeutic measure which the practitioner may use.

2, Modern Methods of Manufacture of Pharmaceutical Preparations, by J. F. Woolsey. The modern pharmacist is a man of considerable science and pharmaceutical manufacture has become a scientific procedure. The demands of increasing population and of greater medical knowledge

have led to the development of highly organized manufacturing plants, each department of which is under a scientifically trained head. Although the manufacture of pharmaceuticals is a commercial business, the manufacturing side of the business is based upon and built about the scientific branches. The scientific departments cover wide fields: chemical, botanical, biological and pharmaceutical. Each of these deals not only with problems of manufacture and testing, but also with research problems. In the manufacture of pharmaceuticals there have been marked advances which have made for better and more uniform preparations.

L. C. Hopp, in discussion upon the two papers, said that the medical profession seems to be getting away from medication, doctors seem to be losing the older confidence in drugs. He felt sure that in quite a few cases the doctor was prescribing something of which he knew too little or nothing. The tendency of the laity to decry drugs because the same prescription may show physical differences when compounded by different druggists would be overcome if the physician, the druggist and the manufacturer limited themselves to simple U. S. P. and N. F. preparations; there would be more uniformity in the resulting preparations. The exigencies of trade have led manufacturers to make inconsequential changes in preparations for the purpose of giving them slightly different appearances, in order to help the sale of what are often essentially U. S. P. and N. F. preparations under trade names.

T. Bernard Tanner said that there are physicians whose knowledge of drugs seems to be based largely upon preparations containing dozens of substances. There is too little knowledge of the essential substances which enter into remedial agents.

S. L. Bernstein believed that one of the faults of the medical profession in regard to drugs, at least until the past few years, was that the student has received too little teaching upon pharmaceuticals and incompatibilities. The advertising of nostrums has also injured the proper use of drugs in the minds of the laity. The druggist must exercise care that similar compounds be always similar in composition and in appearance.

J. B. McGee said that he believed in the value of medication, although he was quite willing to recognize the value of other physiological forms of treatment. Our recent knowledge of drugs has come from the pharmacological side, the laboratory investigator and the clinician working together. The medical profession has become largely dependent upon the pharmaceutical manufacturer and it is gratifying to note the improvements that the better manufacturers have made.

J. F. Woolsey said that some preparations must show differences, especially in tint or color, when made by different druggists or pharmacists. Such differences may not be due to variations in the method of preparation but to the slight variations which the ingredients may show. Because the large manufacturer is able to test the ingredients used the preparations made by the better firms are always to be relied upon.

N. Rosewater believed that the color of preparations is subject to great variation and that the physician as well as the patient must be taught to look less intently upon so slight a matter as differences in tint. The physician should demand that his preparations come from reliable manufacturers. Medical students are taught the action of drugs, but they are not taught sufficiently concerning the drugs themselves, concerning their preparation and compounding. Possibly one reason why so many physicians have become therapeutic nihilists is due to the fact that their limitation of knowledge leads them to rely only upon the simplest substances; they lack the ability to prescribe widely and wisely.

L. C. Hopp brought up for discussion the proposed change in the preparation of green soap, cottonseed oil instead of linseed oil to be used. This change is based upon the fact that the latter oil is no longer made by compression, the method required by the pharmacopeia.

N. Rosewater believed that no change in standard preparations should be made unless there is very good ground for the change.

T. Bernard Tanner said that one objection to the use of linseed oil rests upon the use by some pharamacists of boiled oil instead of raw. The former contains inorganic substances which might prove injurious.

COUNCIL MEETING.

The Council met Thursday, May 16, the President, J. V. Gallagher, in the chair. In the absence of J. E. Tuckerman, J. S. Tierney was appointed Secretary pro tem.

The application of O. B. Monosmith of Lorain for nonresident membership was ordered published. George M. Logan of Akron was elected to nonresident membership. Herbert S. Hayford of Toledo and William G. Zantiny of Jefferson were transferred to nonresident membership.

The report of the Civic Committee, in which was shown the impracticability of securing the cooperation of the lay press and the privilege of censoring medical matter which is to appear in the lay press, was received. The report of the Program Committee was received.

A communication from the *Journal of the American Medical Association* making inquiry into the death of Fred R. Brown was read and referred to the Health Department of the City of Cleveland.

There was read a communication from the Northern Ohio Druggists' Association, telling of the intention of the Bell Telephone Company to discontinue the free physician's service. The Secretary was instructed to write the Bell Telephone Company a letter of protest against the proposed change.

The Secretary was instructed to have necessary repairs and alterations made upon the Elliott addressing machine.

The Secretary was instructed to notify M. Loewenthal that he shall cause the discontinuance of the advertisement in "The Press."

Book Reviews.

Thornton's Medical Pocket Formulary. New (10th) edition. Containing over 2,000 prescriptions, with indications for their use. In one leather-bound volume. Price \$1.50 net. Lea & Febiger, publishers, Philadelphia and New York, 1912.

This is a convenient little volume of about 300 pages, which embodies a series of practical formulae for the treatment of disease. The arrangement is alphabetical in character, and covers quite completely the field of practice in its range. The prescriptions given are judiciously selected and the indications considered under each subject add much to their value. Dr. Thornton states in the preface that "there is a broad and legitimate field of usefulness for works of this character" and the demand for a tenth edition of his work would rather justify his assertion. It will frequently prove a decided aid in treatment. An evident typographical error is the omission of spirits preceding *Glycerylis nitratis* on page 40.

J. B. M.

Surgical Operations. A Hand-Book for Students and Practitioners. By Prof. Friedrich Pels-Leusden, Chief Surgeon to the University Surgical Clinic and Chief of the University Surgical Polyclinic in the Royal Charity Hospital of Berlin. Translated into English by Faxton E. Gardner, M. D., of New York. Cloth, 726 pages, 667 illustrations. Rebman Company, New York, 1912.

Mechanically the book is well built; the type is of good size, the paper easy on the eye, the illustrations clear and helpful.

As to content the book is well balanced; for example, 34 pages are devoted to anesthesia, a subject often slighted. In this connection the author states that the giving of anesthetics should not be left to the youngest men on the service, prefers ether to chloroform as a routine, and recommends the drop method for its administration—all of which sounds rather American for a German Professor. Throughout the book one misses that preservation of old-fashioned procedures which we have been led to expect in translations from foreign works. Any one who has been "stung" with Bull's System of Surgery will fully appreciate the significance of this statement. The clarity of the descriptions of technique is remarkable for a translation. The Rebman Company will render a distinct service to the American medical profession if they continue to give us books as valuable, with translations as well executed as this one.

C. H. L.

The Care of the Insane and Hospital Management. By Charles Whitney Page, M. D. Cloth, 154 pages; price prepaid, \$1.00. W. M. Leonard, Boston, 1912.

This extremely interesting and readable little volume comes from the pen of a physician who for over forty years has been actively engaged in psychiatric pursuits, having served as superintendent of the Danvers State Hospital, Danvers, Massachusetts, and the Middletown State Hospital, Connecticut. He alludes in a brief manner to the personnel of the modern State Hospital, the individual qualifications and obligations of the officials, and points out the opportunities and advantages of laboratory investigation in matters relative to the etiology and treatment of mind disorders. The author's paramount motive in presenting this volume is apparently to advance the cause of nonrestraint and humane treatment of the mentally sick and there can be no question that his sincere and conservative convictions, so simply expressed, will encourage many medical as well as nonmedical minds to take a more hopeful view of the distressing conditions, insanity so-called, and to enlist themselves in a movement which will tend to place our State hospitals on a true curative basis. Those interested will find the reading of this little booklet exceedingly profitable.

H. H. D.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burghard, M. S. (Lond.), F. R. C. S., Surgeon to King's Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green, London. New (2nd) edition. Thoroughly revised and largely rewritten. In five volumes, containing about 3,000 pages and illustrated with about 900 engravings. Price, cloth, \$6 net, per volume. Lea & Febiger, Publishers, Philadelphia and New York, 1912. Vol I: The Treatment of General Surgical Diseases, including Inflammation, Suppuration, Ulceration, Gangrene, Wounds and their Complications, Infective Diseases and Tumors, Deformities. With an Appendix upon the Administration of Anaesthetics by Dr. Silk, and the Examination of the Blood by Dr. W. D'Este Emery.

The first volume, as is apparent from the list of contents, considers the general pathology of inflammation and discusses the surgical treatment of the more simple superficial inflammatory processes. A fair share of the book is given over to the treatment of deformities. The chapters devoted to the subject of orthopedic surgery are eight in number, comprising 172 pages. The subject, of course, cannot be thoroughly covered in such short space, but for what it is evidently intended, namely, as a guide to the general surgeon or general practitioner, the discussion seems to

answer the purpose very well. In treatment the advice given is, on the whole, good, although some of it is not strictly up-to-date. There is little that is new or original in these chapters; this applies also to the illustrations. These are sufficiently numerous, however, to answer the purpose of the work.

G. T. B.

The Practical Medicine Series. 1912. Vol. II. General Surgery. Edited by John B. Murphy. Cloth, 616 pages, illustrated. Price of this volume, \$2.00; of the ten volumes published yearly, \$10.00. The Year Book Publishers, Chicago.

This volume continues the excellence of the series, which is too well known to require an extended description. Two points seem worthy of mention as adding to the value of the book. First, the abstracts are frequently of sufficient length to preserve some of the words and style of the author; all is not sacrificed to brevity. Second, the ground covered will bring to the attention of even a wide reader many excellent articles appearing in the smaller and more obscure journals, which he otherwise would have missed. The total bibliography of medical literature is so extensive that one gets into the habit of consulting only the articles written by men well known, or articles appearing in the more important journals. Such a book as the one before us will tend to correct this fault.

C. H. L.

Acknowledgments.

Public Health and Marine-Hospital Service of the United States: Public Health Bulletin No. 52. Reprints from Public Health Reports No. 76. Reprint from Public Health Reports No. 70.

Leland Stanford Junior University Bulletin. Department of Medicine Annual Announcement 1912-1913.

State of Pennsylvania, U. S. A. Report of the Commissioner of Health. Parts 1 and 2. 1909.

Quarterly Bulletin of Northwestern University Medical School.

Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association; with the Comments that Appeared in The Journal during 1911.

Laboratory Methods. With Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D., assisted by E. G. C. Williams, M. D. With an Introduction by Victor C. Vaughan, M. D., LL. D. Cloth, 204 pages, 43 figures, \$2.00. C. V. Mosby Company, St. Louis, 1912.

Neurasthenia Sexualis. A Treatise on Sexual Impotence in Men and in Women. By Bernard S. Talmey, M. D. Cloth, 196 pages, 19 figures, \$2.00. The Practitioners' Publishing Co., New York, 1912.

Reprints by:

Horace Packard, M. D., Boston.

William S. Magill, A. M., M. D., New York.

Meeting of the American Association of Medical Milk Commissions.

The sixth annual meeting of this organization was held at the Seelbach Hotel, Louisville, Kentucky, April 30 to May 1, 1912. The officers were Henry E. Tuley, Louisville, President, and O. P. Geier, Cincinnati, Secretary.

Over forty members of the various commissions attended, all sections of the United States and even Canada being represented, delegates being present from such widely separated cities as Berkeley, California; Birmingham, Alabama; Brooklyn, New York; and Toronto, Canada.

The program consisted of reports from the various commissions, a report of the year's work from the Council and interesting papers on all phases of the pure milk crusade. Of particular interest were the papers by C. E. North, New York, on "The Results of the Tuberculin Testing of Dairy Herds Producing Certified Milk," and by M. P. Ravenel on "The Relation of Bovine to Human Tuberculosis and Its Pathogenicity for Man." A paper by J. R. Williams, of Rochester on "Municipal Milk Problems," with lantern slide exhibition, was also of great interest, as he showed the conditions under which milk is produced and gave in great detail the cost of production.

One evening session was taken up in the discussion of the report of the Committee on Revision of the Working Methods and Standards for the Production of Certified Milk, of which J. W. Kerr, Assistant Surgeon General, was chairman. This report was based on the answers to a questionnaire containing 67 questions covering every detail in the production and handling of certified milk returned by the constituent commissions.

Owing to the very rigid requirements recommended a great deal of discussion was aroused, but the report, with some minor modifications, was adopted and becomes the standard for all milk commissions. It is hoped that this standard of requirements will be printed by the government as a bulletin.

The adoption of this report was the most important action of the meeting, as it has long been realized that the weak point in the production of certified milk has been the lack of a uniform, rigid standard. Great credit is due to the committee, consisting of J. W. Kerr, H. L. Coit, organizer of the first milk commission, and Dr. S. McC. Hamill, who devoted a great deal of time and study in the preparation of the report.

The members were entertained at luncheon by the members of the Louisville Commission and were taken in automobiles to one of the certified dairies, the seven mile drive through the beautiful country surrounding Louisville adding greatly to the pleasure of the guests. The visit to the dairy was followed by a reception to the guests in a typical old Kentucky home, and it may be noted, in passing, that the guests showed their appreciation of true Southern hospitality by not limiting their observations strictly to such an innocuous beverage as certified milk.

J. J. Thomas and A. F. Furrer represented the Cleveland Commission.

Medical News.

Sixty-ninth Commencement of the Medical College of Western Reserve University: The Alumni Association, at the annual meeting held Wednesday, June 12, elected the following officers: President, C. B. Parker; 1st Vice President, A. F. Spurney; 2nd Vice President, J. M. Friend; Treasurer, E. B. Rhodes; Corresponding Secretary, J. C. Fox; Recording Secretary, J. C. Placak. At the dinner of the Alumni Association, held at 8 P. M. of the same day, 155 were present. C. F. Thwing, President of the University, announced the completion of the \$1,000,000 endowment fund and the election of C. A. Hamann, Professor of Applied Anatomy and Clinical Surgery, to be Dean of the Medical College. Short talks were given by the latter; by B. L. Millikin, the retiring Dean; by R. E. Skeel, Dean of the Medical Faculty of Ohio Wesleyan University; and by the following alumni: J. J. Mullen, 1882, of Pittsburgh; A. F.

Spurney, 1887, of Cleveland; R. K. Updegraff, 1892, of Cleveland; W. I. Huber, 1912, of Cleveland; C. T. Hemmings, 1912, of Cleveland.

On Thursday, June 13, the degree of Doctor of Medicine was conferred by Western Reserve University upon the following: Kamil Johannes Bogacki, Ph. D.; Wayne Emerson Booher, B. S.; Reginald Lee Cameron, B. S.; Robert Clarke, Jr.; B. L.; George Henry Clulow, A. B.; Adam Joseph Cortner, A. B.; James Durfey Coupland, B. S.; Merle Cloyd Davis, A. B.; Joseph Harry Dempsey, A. B.; Frederick Foster Dowds, B. S.; Leo Rees Gaddis; Ernest Walter Garrett, A. B.; Thomas Reuben Keller Gruber, A. B.; Paul John Hanzlik, Ph. G., Ph. C., A. B., A. M.; Armin Bernhardt Herold, A. B.; Ward Irving Huber, A. B.; Frank Jauh Kern; Aldis Adelbert Johnson, Ph. B.; Bruce Raynor Leighton, Ph. B.; Donald Blair Lowe, A. B.; Joseph Edgar McClelland, A. B.; Edward Patrick Neary, A. B.; Roy Gentry Pearce, A. B.; Raymond Arthur Ramsey, A. B.; Arthur Elwood Robertson, B. S.; Eugene David Rosewater, B. S.; Homer Ward Singer, A. B.; George Grant Smith; Howard Hazlett Smith; Stanislas Wess Smolik, A. B.; Robert Lincoln Thomas, A. B.; James Jay Tyler, A. B.; Ralph Milton Waters, A. B.

At the same time Ohio Wesleyan University conferred the degree of Doctor of Medicine upon the following: Paul Elliott Beach; David Percy Bowden, LL. B.; Ruth Cassel; Samuel Harold Cohn; Francis Joseph Gallagher; Clarence Thompson Hemmings; John Alexander Hunter; Lester William Krauss; Nathan Nissau Meyer; Bernice Lynn Peterson Neuberger; John Gill Shimon; Stephen Ulysses Sison; Archibald Alfred Southwick; Charles Dwight Treister; Samuel Albert Zwick.

The following changes and promotions in the Faculty of the Medical Department have been announced:

Benjamin L. Millikin, A. M., M. D., promoted senior professor of ophthalmology; Charles E. Briggs, A. M., M. D., assistant professor of surgery, promoted to be associate professor of surgery; William E. Bruner, A. M., M. D., lecturer in ophthalmology, promoted to be associate professor of ophthalmology; Henry J. Gerstenberger, M. D., assistant professor of pediatrics, promoted to be associate professor of pediatrics; Howard D. Haskins, A. B., M. D., assistant professor of organic chemistry and bio-chemistry, promoted to be associate professor of organic chemistry and bio-chemistry; David Marine, A. M., M. D., lecturer on experimental medicine, promoted to be assistant professor of experimental medicine; Charles W. Stone, A. M., M. D., lecturer on nervous diseases, promoted to be assistant professor of nervous diseases; Charles H. Clark, M. D., lecturer on mental diseases, promoted to be associate in mental diseases; Clyde L. Cummer, Ph. B., M. D., instructor in clinical microscopy, promoted to be associate in clinical microscopy; John F. Davidson, M. D., lecturer on anatomy, promoted to be associate in anatomy; Ralph K. Updegraff, M. D., instructor in physical diagnosis, promoted to be associate in physical diagnosis; Edward Lauder, M. D., C. M., instructor in ophthalmology, promoted to be associate in ophthalmology; Richard Dexter, A. B., M. D., demonstrator of medicine, promoted to be instructor in medicine; Harry B. Kurtz, M. D., lecturer on dermatology, promoted to be associate in dermatology. F. H. Goff and James R. Garfield were elected to positions upon the Board of Trustees of the University.

Alpha Omega Alpha: The following members of the recently graduated class of the Medical College of Western Reserve University were elected to membership in the Alpha of Ohio Chapter of Alpha Omega Alpha, the medical honor fraternity: Kamil Johannes Bogacki, Ph. D.; Paul John Hanzlik, A. B., A. M., Ph. G., Ph. C.; Ward Irving Huber, A. B.; Joseph Edgar McClelland, A. B.; Edward Patrick Neary, A. B.;

Roy Gentry Pearce, A. B.; C. A. Hamann, Professor of Applied Anatomy and Clinical Surgery and Dean of the Medical College, was elected to honorary membership.

The Slocum Prize of the Medical Department of Ohio Wesleyan University was awarded to Archibald Alfred Southwick, of the Class of 1912.

The Lakeside Hospital Medical Society: At the sixty-first regular meeting, held Wednesday, May 29, the program was as follows: 1, Presentation of a Case of Hodgkin's Disease, by E. G. Gilcreest; 2, Presentation of a Case of Brain Tumor, by T. S. Keyser; 3, Presentation of a Case of Gangrene of the Foot of Unknown Etiology, by T. P. Shupe; 4, Typho-Tuberculosis Tubo-Ovarian Abscess, by W. O. Fullerton; 5, Presentation of Pathological Specimens, by H. O. Ruh. The following were elected officers for the ensuing year: President, G. W. Crile; Vice President, O. T. Schultz; Secretary, H. K. Shawan.

The Academy of Medicine of Toledo and Lucas County: At the meeting of the Section on Medicine, held Friday, May 17, the program was as follows: 1, Constipation in Children, by G. L. Chapman; 2, Vincent's Angina, by F. B. McNierney.

Memorial for John Herr Musser: Physicians of Philadelphia have been invited to join in honoring the memory of John Herr Musser by subscribing to the memorial fund to be used to endow the social service department of the University Hospital, Philadelphia, of which he was the founder and president. The will of Doctor Musser provides that if the personal estate reaches \$240,000, the sum of \$15,000 shall be given to the University of Pennsylvania for the endowment of a fellowship in honor of the late Robert M. Girvin.

New Laboratories of the University of North Carolina: The new medical laboratories for the two years' course in medicine given at the University of North Carolina were opened on May 8. These laboratories present a complete equipment for anatomy, physiology, pathology, histology, pharmacology and the other studies usually included in the first two years' course. Provost Edgar F. Smith, of the University of Pennsylvania, delivered the chief address. The honorary degree of LL. D. was conferred upon Provost Smith, Charles W. Stiles, in charge of the work of the Rockefeller Hookworm Commission, and Richard H. Lewis, formerly secretary of the North Carolina Board of Health and president of the National Health Association.

Endowment of the National Committee for Mental Hygiene: A gift of \$50,000 has been made by a donor who desires his name withheld for the purpose of furthering the work of the National Committee for Mental Hygiene. The same individual has agreed to give \$50,000 more, on condition that the sum of \$200,000 additional be secured. *The Journal of the American Medical Association* states that the purpose for which the committee was formed is the study of all matters connected with the commitment, care and after-treatment of the insane. Plans for the study of this subject have been carefully prepared, and it is intended to encour-

age the formation in the various states of allied but independent societies with similar aims to those of the national committee. A special subcommittee, of which William L. Russell, superintendent of the Bloomingdale Hospital, is chairman, has been formed to begin the work outlined, and an office has been opened in the Germania Life Building, New York City. Thomas W. Salmon, of the United States Public Health and Marine-Hospital Service, has been granted leave of absence by the government to undertake this work and has been engaged to conduct the studies outlined by the committee. The newly elected officers are: President, Llewellys F. Barker, of Johns Hopkins University; Vice Presidents, William H. Welch, of Johns Hopkins Medical School; Charles P. Bancroft, superintendent of the New Hampshire State Hospital, Concord, N. H.; treasurer, Otto T. Bannard, president of the New York Trust Company; chairman of the executive committee, George Blumer, dean of Yale Medical School; chairman of the finance committee, Russell H. Chittenden, director of Sheffield Scientific School of Yale University; secretary, Clifford W. Beers, organizer of the National Committee for Mental Hygiene.

David L. Edsall has been elected to the Jackson professorship of clinical medicine in the Harvard Medical School to fill the vacancy made by the resignation of Frederick C. Shattuck, under the retiring rules of the Massachusetts General Hospital. At the same time Doctor Edsall has been appointed to one of the two permanent medical services at that hospital. He is a graduate of Princeton and of the University of Pennsylvania Medical School. He was professor in that school until 1910, and since in the Medical School of Washington University, St. Louis.

The Cartwright Lectures: The subjects of the Cartwright lectures to be delivered by Prof. Ludwig Pick in the Academy of Medicine, of New York, during the second week in November will be as follows: 1. Some pathologic anatomic findings of hypophysis diseases and their practical value. 2. Modern views of the tumors of the nervous tissue. 3. Pathologic anatomy of true and false hermaphroditism in man.

Endowment for Cancer Study: The endowment fund of the General Memorial Hospital, of New York City, has been increased by a contribution of \$100,000 from a scientist whose name has not been made public, for the maintenance of twenty beds for cancer patients. The hospital was chartered for the study and treatment of cancer and allied diseases and is supported by the Collis P. Huntington fund. This institution has been placed at the disposal of Cornell Medical College.

Professor Francis Carter Wood has been appointed to the position of director of cancer research under the George Crocker Research Fund of Columbia University.

New Youngstown Hospitals: The campaign for raising \$100,000 for St. Elizabeth's Hospital, Youngstown, ended successfully April 24, and on April 30 a gratification meeting and banquet was held in the Auditorium. At a meeting of the board of trustees of the Youngstown City Hospital, April 29, action was taken which will result in the building of extensive additions and which will increase the capacity of the institution

by probably 100 beds. The proposed enlargement takes into consideration the utilization of the proceeds of the bequest of the late Miss Sally Tod for the erection of an isolation pavilion. The addition to the hospital is to be known as the "Tod Annex" and will cost about \$75,000. To the east of this wing is to be erected a two-story operating pavilion.

Deaths.

Carl A. Honell Anderson, Cleveland, died April 26, aged 62.

Joshua Betterton Owsley, Jacksonboro, died April 30, aged 80.

Charles William Dahlenberg, Toledo, died May 17, aged 29.

James L. Husted, Woodington, died May 11, aged 75.

Harry L. Reinhart, Ironton, died May 13, aged 38.

James Faithful Aris, Toledo, died May 9, aged 67.

George W. Lyle, Scio, died April 29.

George F. Foster died at Olive Green at the age of 65.

Albert F. McVety, Toledo, died June 9, aged 58.

Thomas Blackstone, Circleville, died June 5, aged 64.

John Lewis Herbert, Hanoverton, died June 1, aged 54.

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No. 7

Hemorrhage from the Premature Separation of a Normally Situated Placenta, with Report of Cases.*

By JACOB L. BUBIS, M. D., Visiting Gynecologist and Obstetrician to Central General Hospital, Associate Visiting Gynecologist and Obstetrician to Mt. Sinai Hospital, Cleveland.

This condition has been described by various authors under the following terms: Flooding (1). Hemorrhage before expulsion of the placenta. Internal, (latent or concealed); external (apparent) hemorrhage (2). Antepartum hemorrhage. Accidental hemorrhage (3). Accidental antepartum hemorrhage (4). Accidental hemorrhage into the gravid uterus (5). Placental apoplexy. Placental hemorrhage. Retro- or sub-placental hemorrhage. Uteroplacental hemorrhage. Dissecting uteroplacental hemorrhage. *Ablatio placentae* (6). *Ablatio placentae praematurae* (7). Fundal incidental hemorrhage (8). Intrauterine hemorrhage during pregnancy (9). *Abruptio placentae* (10).

Definition: When the placenta is attached to the uterus above the contracting ring, i.e., above that part of the uterus which must dilate to permit egress of the fetus, and when from whatever cause, whether from pathological changes in the uteroplacental union or from violence to that organ, the whole or part of the placenta is detached during pregnancy or during labor before the completion of the second stage, a condition of premature detachment obtains (Holmes, 6).

This will cause a hemorrhage which may be small and insignificant, or severe enough to cause the immediate death of the mother, of the child, or of both.

Read before the Academy of Medicine of Cleveland, Friday June 21, 1912.

*This paper received the first prize of One Hundred Dollars offered by the Cleveland Medical Library Association in a competition of essays on any clinical subject in general medicine, surgery or obstetrics, awarded December 5, 1911.

The hemorrhage depends not only upon the amount of placental separation, but also on the size of the blood vessels torn, the location of the hemorrhage and the duration of pregnancy or labor. It may be either internal (concealed), external (apparent) or mixed (combined).

Deweese (11) stated that these hemorrhages may occur at any time; Ingleby (12), during the last three months; Grandin (13), during the first or second stage of labor; Moore (14) and Credé (15) have seen some of the most severe and alarming hemorrhages between the second and third stage.

The following case is a good illustration of the same:

Case I. Mrs. M., aged 23, I-para, large, robust woman. Personal history negative. The pains began at 6:00 P. M. and she was delivered of a nine-pound girl at 2:30 A. M. While the cord was being tied, the patient became blanched, gasped for breath, and the bed was suddenly flooded by a gush of blood. The fundus uteri, which was contracting fairly well, was immediately seized, and gentle traction was made on the cord; a normal placenta immediately came away followed by another and last gush of blood. There was no laceration of the cervix or of the soft parts. The patient made a good recovery, although the acute anemia lasted for some time.

Historical: Hippocrates first described hemorrhages occurring during pregnancy and labor. Paul Portal (16) (1664) showed that they may be due to low implantation of the placenta (placenta praevia). Wm. Giffard (17) (1734) described real and partial separation of the placenta. In 1776 Rigby (3) classified uterine hemorrhages into "accidental and unavoidable." Baudelocque (18) (1806) first described the concealed variety. Goodell (5) (1869) wrote his classical paper on "Concealed Accidental Hemorrhage of the Gravid Uterus," and v. Weiss (7) (1893) and Williams (19) (1900) investigated the pathology. Holmes (6) (1901), Herzfeld (20) (1907) and Goldstine (21) (1910) reviewed the subject very thoroughly and added much to our information. Macan's paper (22) (1904) on the mechanism of accidental hemorrhage is very interesting and instructive.

Occurrence: It is impossible to form definite statistics as many cases are unrecognized or not reported. Among 156,000 maternity cases at the Dublin Lying-in Hospital there were no cases. Churchill (23) collected 257 cases from 170-221 pregnancies. J. W. Smyly (24), in 6,455 maternity cases at Rotunda Hospital, Dublin, (1889-1893) had 36 cases. Markoe (25) found 68 cases among 60,000 at the Lying-in Hos-

pital, New York, (personal communication). Holmes (6), Herzfeld (20) and Goldstine (21) figure that it occurs in 1 out of 500 cases, while Jewett (28) thinks that the ratio is 1 in 10,000. I encountered this condition three times amongst my first 75 obstetrical cases.

Etiology: The causes may be divided into:

1, Predisposing: This hemorrhage is rare in the young and robust. It occurs mostly in those past forty years, in multipara, and generally during the latter months of pregnancy. It is also frequent in the sick and badly nourished, whose musculature lacks tone.

2, Pathological (of the mother): Ulcer or polypus at the neck of the womb, tumors of the uterus, diseases of the rectum or bladder (2), simple and gonorrheal endometritis (20), toxemia of pregnancy (30), uterine or periuterine inflammation, abnormal uterus, i.e., vagina or uterus duplex, uterus bicornis with one horn rudimentary (31), are the usual maternal causes. The following diseases may also cause this condition: Nephritis, exophthalmic goiter (7), bilious affections during epidemics, various alimentary lesions (2), acute dysentery (32), influenza (33), arteriosclerosis (34), diabetes (28), scrofula, tuberculosis, scurvy, lead poisoning (35); infectious diseases, such as smallpox, scarlatina, typhoid, acute rheumatism; also acute yellow atrophy of the liver, leucocythemia, hemophilia; acute inflammation, as pleurisy and pneumonia (36), and heart diseases.

2, Pathological (of the fetus): Under this head come death of the fetus; prolonged pregnancy; short or abnormally long cord (31), hydramnios (37), premature rupture of the amniotic sac during severe labor pain (38), precipitate labor (33), excessive fetal movements (5), and fetal malpositions causing irregular uterine contractions (29). It is not a rare occurrence after delivery of the first twin.

2, Pathological (of the placenta): Placental infection (7), large placenta (39), placental apoplexy, morbid conditions of the placenta, as fatty degeneration, fibrous masses, or atrophy (36); thrombus (40), tuberculosis (41), weak vessels at the placental site or increased tension in the same (22) are etiological factors.

3, Accidental or Mechanical Causes: Lifting, straining at stool, vomiting (42), sneezing, stretching (43), violent ex-

ercise, walking, running (6); excessive fetal movements (36), excessive coitus; blows and falls may bring on this condition.

As an example of the latter, I cite the following: Case II. Mrs. P., aged 35, III-para. Previous history, negative. During her eighth month of pregnancy she fell down a flight of stairs. Fetal movements immediately stopped and there was a profuse hemorrhage from the vagina. Examination showed no dilatation or labor pains. The vagina was packed and the hemorrhage ceased. Labor pains began and she was delivered ten hours later of an eight months dead fetus.

4, Drugs: DeForest (33) reports a case caused by giving peptonate of iron as a tonic. Ergot, tansy, savin and other oxytoxic drugs are known to have caused the same.

5, Emotional: Fright (3), sleepless nights (2), hearty laughter (23), coughing and profound emotion (5) are among laughter (25), coughing and profound emotion (5) are among the other causes.

Pathology of the Uterus: Goodell (5) states that from the seventh month to term is the most favorable time for hemorrhage (concealed). "The vessels are of large caliber, the placental disc is a vast hemorrhagic area and the tissues are spongy and elastic. The uterus behind the placenta is so perforated and honeycombed by large vessels and sinuses, at the expense of the muscular tissue, that the contracting power is impaired and yields under tension and easily bulges." v. Weiss (7) reports two cases of infection and degenerative changes in the musculature of the uterus. Maslowsky (44) had a case due to gonorrheal interstitial endometritis. In the decidua there are exudative and degenerative changes with a leukocyte and round cell infiltration, varying in amount and intensity.

Pathology of the Placenta: Macroscopically the placenta may vary from a normal appearance to one showing very marked degenerative changes. Infarcts of the placenta, present in about 63 per cent of all cases (19), are generally due to kidney trouble, not lues (41). They may vary from small scattered areas to the size of one or more cotyledons, and we may also have "placenta margo," (19) i.e., a broad rim, white or yellowish in appearance, varying from a few millimeters to several centimeters between the edge and center of the placenta. Apoplexy (placenta Truffé) (19) produces a sharply circumscribed, more or less circular, bright or dark red infarct. It is generally caused by rupture of the delicate capillary loops

of maternal origin, that surround the villi, due to an endarteritis of obliterating character. These infarcts may undergo the various changes of degeneration and thus impair the uniformity of the placental structure. This will prevent the placenta from following the movements of the uterus, and cause premature separation.

Microscopically, Seitz (45) has shown that thrombosis of the vessels is due to round cell infiltration and compression, which later closes them. Diseases of the vessels and high blood pressure in the arteries, due to nephritis, cause an exudation of blood into the surrounding tissues, degeneration of the decidua cells, and loosening of the placenta. The decidua cells of the placenta appear cloudy, stain poorly, have an indefinite contour, and leukocytes and round cells lie either singly or in masses between them (7).

Symptoms: These depend on first, the kind of hemorrhage, whether concealed, external or apparent, or mixed; second, the time of pregnancy or labor; third, the amount and rapidity of loss of blood; fourth, the amount of and resistance to shock.

The concealed variety is one of the worst and rarest complications of pregnancy or labor. The maternal mortality is more than 50 per cent, while the fetal is 95 per cent. It is favored by (1), absence of labor pains; (2), intact amnion, (the membrane keeping the blood localized); (3), firm placental attachment around the hemorrhagic area; (4), close apposition of the presenting part; and (5), the coagulation of the cervix uteri.

Case III, Mrs. S., aged 35, II-para, both labors difficult, no instruments were used. She suffered from leukorrhea and "female trouble." Six months pregnant; while arising in the morning felt faint and weak; had pressure in the rectum which was not relieved by enema. She vomited repeatedly. I saw her about noon. The patient was very anemic, restless and complained of a tight feeling in the lower abdomen. She also noticed an increase in the size of her abdomen. The uterus was tense and firm. Neither fetal movements nor the fetal body could be palpated. The cervix was rigid and undilated, and the labor pains were absent.

She would allow no interference and insisted upon waiting. Next morning she called my attention to a considerable discharge of blood-tinged fluid escaping from the vagina, which caused some relief. The temperature was 99° and the pulse was 120.

The face had assumed a peculiar greenish-yellow tinge like that in pernicious anemia, as in a case described by Jardine (38). The urine was scant with a slight trace of albumin. The cervix was softer and dilatable. Presenting at the external os was a soft mass which at first was sugges-

tive of placenta. It broke down, however, very easily and proved to be a blood clot. The membranes were intact. The pulse was now 130. Labor pains began shortly after sending her to the hospital. In the evening she was delivered of a six months' slightly macerated fetus, soon followed by a normally appearing placenta, with a large amount of dark blood clots. The interne grasped the fundus of the uterus according to the Kristeller method and expelled a liter of clots. The uterus was irrigated with hot saline and packed. No fresh hemorrhage occurred. The patient made a slow and uneventful recovery.

The cardinal symptoms of *concealed* accidental hemorrhage are as follows:

1, Pain: The pain may vary from menses-like to the most agonizing in character. It is caused by the stretching of the uterine muscles and nerves, and the severity will depend on the rapidity of the hemorrhages, the strength of the adhesions between the uterus and placenta, and the tone of the uterine muscle. It is generally located at the placental site. At times the shock to the nervous system or the prostration and syncope is so great that no pain may be felt (28). The following abstracts taken from the literature (5) help to describe the pain: Weak, dull pain in the womb; from queer feeling to greatest torture and agony; severe pain in the abdomen, as if she would burst; very violent cramps; state of intense suffering; and sudden change in the labor pain (13).

2, Shock: The sudden tension on the muscles and nerves of the uterus causes the shock. It acts like a sudden blow on the solar plexus, "nerve storm" (46). The symptoms are frequent and small pulse, paleness, cold extremities, syncope, closed eyes and general muscular relaxation. Very often the patient will immediately call your attention to the sudden enlargement of the uterus as in Case III. A four months pregnancy may in size resemble one at term. Jaggard (26) described a case in which the uterus, at the seventh month, extended to the xyphoid and contained three liters of coagula.

3. The enlargement of the uterus: The uterus may be uniformly enlarged, or there may be a bulging at the placental site. It is usually tender, may be hard as wood or doughy and elastic as an ovarian cyst (27). Keyworth (47) described it as a hard tense promontory.

4. Absence of true labor pains: Unfortunately, the sudden distention takes the uterus by such surprise that it may take hours or days of precious time to recover itself and begin to contract down upon the foreign body (the fetus generally

being dead). If the hemorrhage occurs during labor, it may cause a sudden cessation of pain (5, vii). The os may become completely dilated without true labor pains (5, xxxix), or the pains may not begin until after rupture of the membranes.

5, Loss of fetal outlines: Ditson (48) reported a case in which the movements of the fetus suddenly ceased after being very active, due to the interference of the blood supply causing asphyxia. The hemorrhage and accessory tumor interfere with the outlining of the fetus.

6, Escape of serum: After a variable length of time, from a few hours to several days, a serous blood-stained fluid appears at the vagina. This is often mistaken for the amniotic fluid, and is due to the squeezing out of the serum from the blood clot. Very rarely blood will escape into the amniotic sac, due to a high rupture (6).

The cervix corresponds to the stage of pregnancy or labor, and the membranes are generally intact. By pressing upon the presenting part, we may get an increase in the hemorrhage. Very often a blood clot may present at the internal or external os, and occasionally the whole placenta will prolapse. All *mixed* hemorrhages are at first concealed. After a variable length of time, depending on the location of the hemorrhage, the amount of adhesions, etc., the blood will dissect its way between the placenta and uterus and appear at the vulva. It may vary from a slight ooze to a gush large enough to endanger the life of the mother from hemorrhage. The symptoms will depend on the amount of shock, or loss of blood, or both.

The *external* form is the least dangerous and most frequent of the three. The symptoms are generally due to the loss of blood. It is very often mistaken for marginal placenta praevia, may occur at any time, and may cause death from the acute anemia and collapse.

Complications: Postpartum hemorrhage may be immediate, or as late as the sixth day (49). Sepsis, laceration of the soft parts, rupture of the uterus, inversion of the uterus due to paralysis of the placental site (50), embolism of the pulmonary artery as the result of syncope or detachment of a thrombus from the pelvic vessels, acute anemia and profound mental emotion, are among the most usual complications.

Diagnosis: Sir Arthur Macan (51) states that it is difficult, and at times impossible, to make a diagnosis until after labor, and the death is often attributed to fainting or heart failure. However, "when a patient complains of abdominal pain during the last half of pregnancy; vomits; and the uterus becomes tender, hard and distended; when an accessory tumor is present and a vaginal hemorrhage or serous discharge appears at the vulva, the placenta not being palpable; and when the excessive fetal movements are followed by their cessation, absence of the fetal heart sounds and loss of fetal contour, especially with the above constitutional symptoms, then one must suspect a hemorrhage from the premature separation of a normally situated placenta." Any or all these symptoms may be present.

Differential Diagnosis: Some of the conditions that must be differentiated are placenta praevia, rupture of the uterus, flatulent colic (5), fainting fit, internal injuries, bursting of an abdominal aneurism, rupture of the stomach or bowel (38), rupture of an ectopic gestation, rupture of large vessels at the neck of the uterus or in the vagina (52), laceration of the cervix (31), rupture of the circular sinus late in the second stage (21), placental apoplexy (35), acute hydramnios (6), breech presentation (53), and hydatidiform mole.

Prognosis: This depends on the previous condition of the patient, the kind of hemorrhage (the concealed variety having the highest mortality), the time of labor or pregnancy that the hemorrhage begins, the condition of the cervix and maternal soft parts, the position and size of the child, the amount of shock and blood lost, the time of diagnosis, the kind of treatment, and the complications.

Spiegelberg (54) states that we may get a live child ten minutes after total ablation. In 743 cases the average mortality of the mother was 18.5 per cent, while that of the fetus was 44.78 per cent.

Prophylaxis: No woman should become pregnant unless she is in a good physical and mental condition. All pathological conditions should be rectified. Every patient should be under the supervision of a physician from the beginning of pregnancy to the end of the puerperium. The urine should be regularly examined, the bowels and diet regulated. She should abstain from all alcoholic drinks and avoid exertion.

During the time of labor the room should be kept at a comfortable temperature, the patient lightly covered and given cool drinks; she should also avoid all excitement. The physician should recognize malpositions early; not allow her to strain too hard or prematurely, not rupture the membranes during a severe pain, and not pull on the cord (55). He should prevent precipitate labor, allow the uterus to gradually empty itself, and follow the fundus with the hand (Kristeller method).

Treatment: It is impossible to outline a definite and set rule to follow. Much will depend on the condition of the patient, the state of the os, the position of the child, the kind and location of the hemorrhage, the period of gestation or time of labor, the ability and judgment of the accoucheur.

During the hemorrhage, rest, both physical and mental, is of the utmost importance. Various forms of opium are used. However, morphin sulphate, with or without atropin or hyoscyamin (46), or hydrastus (6), will stop the severe pain, and, if the os is rigid, will help to relax the same; chloroform or ether, if indicated; ice bag to the abdomen. Stypticin may help to stop the bleeding, and heat to the spine may stop the bleeding reflexly (56).

If the patient is in shock, raise the foot of the bed, bandage the limbs and keep up the body warmth with hot water bottles, etc. Stimulate with hypodermics of camphor, ether, ammonia, etc. Saline infusions, with or without adrenalin, either under the breasts or intravenously (although Holmes (6) fears they may cause embolism), followed with strychnin are "*par excellence*." Hot enemas of black coffee with whiskey are very stimulating.

If the patient is in collapse from loss of blood, treat as above and replace immediately, if possible, the lost blood by transfusion according to Crile's method (57). Meadows (43) advocated it as a "*dernier ressort*." Blundell (58) performed it fourteen times with good results. In the mean time try to control the hemorrhage. If possible, transfer her to a hospital. The Momborg belt is still of doubtful value, although it has been used successfully to stop the hemorrhage in a case of hemophilia (59).

Merriam (60), Simpson (61), Healy (62) and others, ad-

vise the immediate rupture of the membranes. Playfair (63) combines it with the use of the binder. Collins (64), if the patient's strength gradually fails; Goodell (5), in the frank variety; Morris (65) follows with forcible dilatation; DeForest (33), in a concealed hemorrhage; Churchill (23) and Dewees (11), if no result follows plugging. Smyly's (24) results were so bad that he changed his methods to plugging. Denman (29) and Lop (39), in severe cases, rupture the membranes when they can feel them. Rigby (3), in mild cases during the first to the eighth month, tried to leave to nature; if there was no result, he ruptured the membranes; Ingleby (12), Landis (67), Peterson (68), and others, when the os is dilated or dilatable, so as to be able to do a rapid delivery. Atkinson (58) called it "unguarded advice."

Some authors invariably use the plug, with or without a tight abdominal binder and perineal pad, as advocated by Colclough (69). Atkinson (52) and others use it for a long rigid os with membranes unruptured. Ramsbotham (55), if the membranes were ruptured and the cervix hard. Smyly (24), in all external hemorrhages with membranes intact. Dührssen (70), when there is faulty dilatation of the cervix, membranes intact and there is severe bleeding. Jardine (38) states that it may help when contractions are going on. Goldstine (21) uses it when there are no uterine contractions or dilatation, and with the patient in collapse, until the uterus and patient recover; but not after the membranes are ruptured.

Holmes (6), on the contrary, never saw a woman tolerate the binder, or a contracting and relaxing uterus held in place. The life of the mother is always to be given the first consideration. In the mild cases, the expectant treatment is advisable, being prepared, however, to do immediate delivery, if necessary.

In the more severe cases, if the cervix is hard and undilatable, start uterine contractions and cervical dilatation by gentle friction of the cervix and uterus, hot douches (71), plug, abdominal binder and tight perineal pad. Later, the Bossi dilator, Barnes' and other dilating bags or finger dilatation may be employed. After dilatation, rupture the mem-

branes and deliver by leaving to nature, version, forceps, vaginal Cæsarian section, according to the indications.

When the life of the mother is in danger, she must be immediately delivered before shock or collapse. If the cervix is hard, with no time to dilate, vaginal or abdominal Cæsarian section; if the child is dead and the head engaged, craniotomy and embryotomy; if alive, pubiotomy, forceps or version are indicated after the cervix is prepared. The Porro operation has been used a number of times with good results (7, 20). It is indicated in neglected cases, with danger of sepsis, and in uncontrollable uterine hemorrhage. Lequex (72) advocated vaginal hysterectomy for old hemorrhage, infection and open ovum.

In concealed hemorrhage treat the shock, lower the intrauterine tension by making a pin point hole in the membrane, to allow the gradual escape of the liquor amnii, and deliver as soon as possible. Favell (66) advises Cæsarian section, while v. Guérard (49) cannot see any indication for the same. Immediate delivery of the placenta is indicated in hemorrhage after the second stage.

The use of ergot is a mooted question. Most authors are in favor of its use, and Holmes (6) thinks that this is the one antepartum condition in which it is indicated in small doses. Churchill (23), Hellier (73), Leuf (74) and Schroeder (75) used it in various amounts. Some combine it with galvanism and massage. Barnes (36) thought that it was contraindicated, saying that in case of great depression the drug was not absorbed and therefore inert, or if absorbed, it caused greater depression.

Conclusions:

1. The title used in this paper is not original, but is the most satisfactory and explicit.
2. Statistics to date are still unsatisfactory; however, with the modern diagnosis and the greater interest in reporting cases, they are becoming more accurate.
3. There is no disease which has a greater variety of causes.
4. Placental apoplexy, like placental infarct, is a cause of this complication of pregnancy and not a disease.

5. The condition of the cervix is the guide to the treatment and prognosis.

6. Complications are numerous and dangerous.

7. Prophylaxis should be the watchword of both patient and physician.

8. The hospital is the best and safest place for the patient.

9. There is no routine treatment. Each case must be treated "*per se*."

10. The value of transfusion is acknowledged.

11. The value of the Momberg belt is still in question.

12. Pubiotomy, after the cervix is prepared, should be done if the child is living and the head is engaged.

13. In concealed hemorrhage, with treated shock due to increased intrauterine tension, release the liquor amnii slowly through a pin point opening and use the Kristeller method.

14. Careful observation of the patient is very essential.

15. Most authors are in favor of using ergot.

Addendum: Shortly after submitting the above essay to the Secretary of the Library Association, I was asked by J. W. Epstein to see another case of concealed hemorrhage from the premature separation of a normally situated placenta. The history of the case is as follows:

Mrs. C. W., aged 21 years, American by birth, married eleven months.

Her personal history was negative except that she was treated for chlorosis when a child.

Present illness: The patient was six months pregnant, did all her own house work and considerable sewing. She felt perfectly well until two days before the present illness. Since then, although suffering no definite pains, she felt uneasy, apprehensive and nervous. On September 10, 1911 at 2 P. M., while sitting in the bathroom, she had a sudden severe attack of weakness, vomiting and diarrhea, and fainted several times. Slight labor pains began soon after. The doctor saw her at 6 P. M. The pulse was 92, the temperature was normal and the respirations were slightly increased. The cervix admitted one finger. The labor pains were infrequent and short. At 8 P. M. a considerable amount of sero-sanguinous fluid and clots escaped from the vagina. Her condition was gradually growing worse and she was sent to St. Ann's Hospital, where I saw her about midnight. Examination showed the following: The patient was a young woman of slight build, lying on her left side with her knees flexed, evidently suffering severe abdominal pain. Her features were pinched and anxious, the eyes sunken, and the breathing was rapid and shallow; the mucous membranes were blanched, and the skin was of a greenish-yellow color. She complained of severe tearing pains in her lower abdomen and stated that her abdomen felt larger. Labor pains occurred every three to five minutes, but were not of the true bearing-down kind. The temperature, pulse,

and respirations were 97.8°, 140 and 40 respectively. A catheterized specimen of urine showed an acute hemorrhagic nephritis.

Upon external examination the uterus was found extending to the umbilicus, firm and more prominent on the right upper front side. No fetal movements, parts or heart sounds could be made out.

Vaginal examination showed the following: The vagina was full of clotted blood, the cervix was three-fourths dilated, the membranes were bulging and the fetal head presented; no placental tissue could be felt at either os. A diagnosis of premature separation of a normally situated placenta, death of the fetus and acute hemorrhagic nephritis was made and the following treatment given.

Under light chloroform anesthesia the cervix was rapidly dilated. During this manoeuver the membranes ruptured spontaneously. The Kristellar method was immediately begun and a six month, dead and slightly macerated fetus was easily delivered with low forceps. Fifteen minutes later the placenta, followed by a large amount of clot was expelled. A hot saline intrauterine douche was given and the uterus contracted firmly. The pulse was 150. Saline under the breasts and *per rectum* were started, the foot of the bed was raised, ergotol, strychnin, digitalis, opiates, camphor, caffein, etc. were given during the night at definite intervals. The limbs were bandaged and the extremities kept warm. Her condition, however, was gradually getting worse, and at 11:30 A. M. the pulse was 170 and very weak. She was taken to the operating room and a direct blood transfusion was done by G. W. Crile. Her brother, 18 years old, was the donor. The results were remarkable. At 12:40 P. M. she was back in her room, the pulse was 140, her color was good and her mind was clear. At 7:30 P. M. her temperature was 99.2°, pulse 115, and of good volume and tension. Small amounts of nourishment were given at frequent intervals. The next evening her temperature was 99°, pulse 100. Three days later her urine was practically normal. Her rapid recovery was delayed by trouble with her breasts, which began four days after transfusion.

Macroscopically the placenta appeared normal except for a rounded depression at its upper margin, six centimeters in diameter. Within this was found a well-formed blood clot which was undoubtedly caused by rupture of a small blood vessel.

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A Case of Separation of the Lower Epiphysis of the Fibula.

By LAWRENCE A. POMEROY, M. D., Cleveland.

The rarity of reported cases of traumatic separation of the lower epiphysis of the fibula seems to warrant the report of this case.

On April 30, 1912, Mildred S., aged 14, was roller-skating when some obstruction on the sidewalk brought her right skate to a sudden stop. She fell to the sidewalk with her right foot inverted beneath her body. She was carried to her home where I saw her about half an hour later.

As she lay on her back there was no deformity apparent except a slight inversion of the right foot. Over the external malleolus was a circumscribed circular area of edema about four centimeters in diameter. All movements of the ankle caused slight pain. There was no tenderness over the internal malleolus; there was some tenderness over and especially just above the external malleolus; pressing tibia and fibula

together in the upper third of the leg produced considerable pain just above the external malleolus. No crepitus was made out.

The foot and leg were put up in a pillow splint after the slight inversion had been somewhat over-corrected. Three days after the injury radiographs were made by Doctor Geo. F. Thomas. Both right and left ankles were taken, the right side showing a definite separation of the lower epiphysis of the fibula. In the radiograph of the right side there also appears what is probably a partial separation of the inner por-



Left Ankle; normal.

Right Ankle; separation of epiphysis of fibula; possibly partial separation of epiphysis of tibia.

tion of the lower epiphysis of the tibia. There were, however, no signs of this separation made out in the examination of the ankle, and I think it may be disregarded in the consideration of the case.

The case progressed well with a pillow splint for one week, a starch bandage for two weeks, then merely an adhesive plaster strapping, the patient being encouraged to move the ankle joint freely for several days before any weight was put on the foot. There is now (July 1, 1912) no deformity and the functional result is perfect.

In regard to the frequency of these cases Poland¹ says: "Although fracture of the fibula alone is rare in children it is exceedingly probable that the majority of supposed frac-

tures of the lower end of the fibula occurring in youths from 12 to 19 years of age are really separated epiphyses." However, Poland states that he "is unable to refer to a single instance of simple separation of the lower epiphysis of the fibula, with or without displacement, which has been correctly diagnosed and described during life."

Poland describes four compound separations caused by severe direct violence, two pathological specimens (one of which he himself says is rather doubtful), and one case complicated by fracture of the tibia and partial separation of the lower tibial epiphysis. The one simple separation caused by indirect violence, in his report, was in a boy of 18 who fell eight feet from a trapeze. There was inward displacement of the foot and it was supposed that the fibula was fractured. A plaster dressing was applied but gangrene followed and the foot was amputated. Examination of the amputated foot showed that "the separation lay exactly and completely through the epiphyseal cartilage" of the lower end of the fibula.

The following are the only references to this injury published since Poland's book that I have been able to find.

Meissiter² saw a girl of 19 years half an hour after a fall from a steam roundabout. There was inversion of the foot and a two inch separation of the fragments. The deformity was corrected and a pasteboard and starch splint applied.

Cotton³ says: "Separation of the lower epiphysis of the fibula alone is rare. It is mechanically the equivalent of fibular fracture. The diagnosis rests on the patient's age, the location of the lesion and the presence of cartilaginous crepitus, if any. I have read of no case in which there was any considerable displacement or any difficulty in reduction or retention."

About the prognosis in these cases Poland says: "It is improbable that any severe deformity or arrest of the proper growth of the limb will be likely to result from the separation if properly reduced, inasmuch as the tibia is the principal bone upon which the leg depends for its increase in length, the fibula playing a subordinate part."

I am indebted to the patient's father, a physician, for

the privilege of reporting this case, and to Doctor Geo. F. Thomas for the radiographs.

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2047 East 9th Street.

Cleveland's Maternity Dispensary System.

By A. J. SKEEL, M. D., Cleveland.

The great cause of human wretchedness is unfitness. This unfitness is of three types—moral, mental and physical. It may be communal or individual. Dealing with moral unfitness is the duty of religion. Dealing with mental unfitness is the special arena of education. Dealing with physical unfitness is the peculiar field of medicine.

Habitual poverty is always evidence of unfitness along one of these lines; it usually means two of the great divisions of unfitness and too often moral, mental and physical unfitness combined are its potent causes.

The educator, the preacher, and the doctor are each therefore specialists in the relief of human misery. Each with his attention focused on his own particular field, his vision somewhat circumscribed by the resulting concentration and thoroughly convinced of the paramount importance of the work in which he is engaged, becomes often somewhat intolerant to the necessity for the other specialists.

The trained charity worker, whose aim, viz., the relief of human misery, combines all of these activities with perhaps no deep knowledge of any one of them, is the general practitioner who stands close to the family and individual, advises, aids, works for and with them, and calls the specialist for more expert advice or refers the patient to him as the case may be.

Read before the Academy of Medicine of Cleveland, Friday, May 17, 1912.

The dispensary should represent the combination of two lines of endeavor. Taking its origin from the purely medical side and reaching out for the aid of the trained charity worker to balance its efforts, or originating in the sociologist's seeking aid from the worker along the special line, medicine, its greatest efficiency can only be attained when these two work in unison. The social worker finds poverty and misery due to illness and requires the co-operation of the doctor. The doctor finds illness too often due to poverty and needs the help of the sociologist.

The combined resources should be represented in efficient dispensary work. The sociologist must have particular knowledge along various lines. That the social worker most valuable in the medical dispensary is one having more than ordinary medical knowledge is a self evident proposition. The visiting nurse is the modern solution of this problem. The visiting nurse should be first of all a sociologist. That her education should be broad is a prime requisite. That she should be skilled in sociological activities is imperative. That she may successfully adapt herself to work along medical lines requires that in her training she should become thoroughly familiar with the atmosphere, traditions and ethics of medicine.

The breadth of her sociological vision will be the measure of her success in a communal sense. The depth of her medical training will show in her ability to utilize the best that the medical profession has to offer. Lack of knowledge of medical tradition, medical ethics, etc., unless compensated for by unusual keenness of intuition and exceptional tact will make her constantly misunderstood and misjudged by the very physician whose sympathetic aid she seeks. Needless is it to say that her entire work must be above suspicion of factionism, of favoritism, of any other object than a single minded desire to give relief to suffering.

From the standpoint of the medical profession the dispensary and hospital clinic stand, and so long as present conditions prevail, must stand for three things: First in importance is the relief of physical suffering; this aim should be pre-eminent. Second, under the present methods of medical education it is an indispensable factor in the training of physicians competent to undertake general practice. Third, an

equally requisite factor of the clinic is the training of physicians competent to undertake particularly complicated or difficult cases—the so-called specialist. If the latter is to be of any use whatever he must have more skill, more experience, more practice (if you like) along particular lines than his fellows. If he has not these he is useless.

The medical profession receives many high sounding compliments for its readiness to do charity, and it deserves them. Every worthy member of the profession stands ready to aid his suffering fellow-man without hope of reward, either financial or any other kind, and he should; but let us be honest with ourselves and with our sociological cooperators and stand squarely on the proposition that medical training requires patients, medical skill requires experience, and that as society is at present organized, the medical dispensary combined with the hospital clinic is the only practicable source of this experience. A clever sociological worker once remarked to me that she had just begun to realize that the profession looked upon the dispensary as a source of medical experience.

The dispensary must seek to do all that has been outlined and yet must protect both the profession and the community from the harm of the so-called dispensary abuse. In what does this abuse consist? It consists in the double harm of teaching pauper habits to individuals and families that are able to pay, and consequently can only be self respecting if they do pay, and in depriving worthy members of the profession of fees which they deserve and must have if they are to care for themselves and their families, and are to continue to maintain their work at high standards. The source of this abuse is twofold. First, lack of knowledge of the would-be patient's financial condition; usually because of the absence of the cooperation of the social worker. Second, lack of desire to investigate too closely, because of the wish to acquire a large amount of clinical material.

With regard to maternity dispensary work in Cleveland still another element is to be considered, i. e., the midwife. This is largely an educational problem. The midwife is a relic of the days when obstetrics was not a scientific art; of the time when the relation between the streptococcus and puerperal fever, between the gonococcus and ophthalmia neonatorum was unknown.

Just as rapidly as women learn that their safety in childbirth depends upon having skillful, trained care, just so soon do they seek the services of the educated, well trained physician at this time. The class to whom this lesson needs to be brought home is just the class that must learn by object lesson rather than by didactics. The great majority of these people, once they have seen at work the forces of a well conducted maternity dispensary, the preparation of bed and of patient, the painstaking cleanliness, the care of the child's eyes, etc., have received an object lesson which makes them forever dissatisfied with careless, dirty work. Their respect for the physician and all his ways is immeasurably increased thereby. Their medical education has begun.

In Cleveland, at least, the visiting nurse has been the hearty cooperator with the doctor in teaching this lesson. She refuses her aid in any case not under the care of a physician. One of the greatest aims of dispensary obstetrics should be the teaching of this lesson, that the welfare of the mother and child in pregnancy and confinement depends upon careful medical supervision; that the prevention of infection, the early diagnosis and proper treatment of complications in labor involving the life of both mother and child may be at stake.

If obstetrics has any right to a place with the other branches of medicine, if its correct practice requires the wide knowledge and the skilled technique of the educated physician, if modern science has placed it on a coordinate plane with surgery, diagnosis, pediatrics, etc., then the proper solution of the midwife problem is not her education, but her elimination. Improve her as much as you can; train her as well as her capacity will permit; but never forget the great end to be attained is her total extinction. With the rapidly increasing demand for preliminary education and for a high degree of technical skill on the part of the physician, the total absurdity of allowing one-third to one-half of our female population to be delivered by individuals possessing none of these attainments must become more and more apparent. I believe that the teaching to the laity of these facts is in no small degree the duty of the maternity dispensary.

The foregoing is, as I see it, the object, the reason for existence and the correct limitation of dispensary work in general and of maternity dispensary work in particular, as

modified by the additional factor of the midwife. In order to see whether maternity dispensary work in Cleveland is adapting itself to these needs and meeting with these requirements we must examine the *modus operandi* of the dispensaries. To what extent are we in cooperation with the local sociological forces? How are we getting our patients? How are they being cared for, and how do we investigate their financial condition?

In answer to these questions I shall first present a statement of the Visiting Nurse Association as to the sources for, investigation of and disposition of maternity cases, and then describe the method of handling a case in the particular dispensary with which I am connected—the St. Luke's Maternity Dispensary.

"Maternity Dispensary Work in Connection with the Visiting Nurse Association: All cases needing maternity care and being confined in their own homes, provided they are unable to bear the expense of care, are referred by the Visiting Nurse Association to the Western Reserve Maternity Dispensary and to the Cleveland Maternity Dispensary, now St. Luke's Maternity Dispensary.

Cases come to us from many and varied sources. Our call book, in which all cases are entered as referred, shows cases being reported from the Associated Charities; the Babies' Dispensary and Hospital; the Tuberculosis Dispensaries; School Nurses; Out-door Relief Department; Deaconesses; Different Settlements; Humane Society; Neighbors, patients, etc.

When the case is referred to the Main Office, the first step is to call the Charities Clearing House and if we learn that either dispensary has already registered the case, we do not do anything further. If the case is not registered in the Clearing House we send a District Nurse into the home to investigate the financial condition; the District Nurse, in turn, notifies the Main Office whether or not the case should have Dispensary care—or, as we call it, O. K.'s the case for the maternity dispensary. For one year, April 1, 1911, to April 1, 1912, our book shows 425 cases given out.

Sometimes we find that people are not in need of the Association's care or if they are very poor, even, have a doctor already engaged who has previously cared for them and is

willing to do so now and wait for his fee. In such cases the District Nurse gives free bedside care.

In case of an emergency an investigation by the District Nurse is occasionally omitted and the word of the reporting organization is taken as to need, etc., the case being turned over immediately to the maternity dispensary."

We can perhaps best get an idea of the working of the entire machinery by following a typical case through.

Mrs. X., let us say, is pregnant and her husband is out of work, and the family applies to the Associated Charities for assistance. They investigate, give what maternal aid is needed and refer the mother to the Visiting Nurse Association. The district nurse then investigates and upon her O. K. the case is telephoned to our headquarters and our nurse takes charge, visiting the family, etc. When labor starts the patient's husband or friends telephone the hospital and an interne and a hospital nurse in training go to the home and confine her. Especial pains are taken throughout to impress upon the family the necessity of cleanliness, preparation, etc. The nurse then makes daily visits until the case is two weeks *post partum* if normal or longer if conditions require.

Nearly all of our cases are therefore carefully investigated before we see them and again visited in their homes by our nurse before confinement. We feel that under this system very few unworthy cases are cared for. This has been the plan at our dispensary practically since its organization seven years ago.

In Boston, a city of about Cleveland's size, last year over 2800 cases were confined by the Boston Lying-in-Hospital organization. In Cleveland the total cases cared for by various maternity dispensaries annually is about 750. Midwives during this same time care for upwards of 5,000 women in childbirth.

Our first thousand cases was recently completed with but one death among the women whom we cared for from the beginning of labor. Nor is this record cited as being exceptional. On the contrary it is the rule, where an out-maternity department is carefully conducted, to have a death rate of from one to three per thousand.

Not the least valuable feature of a good maternity dispensary is its hospital affiliation. Our foreign population

comes to this country with a deep seated fear of the hospital. It is unnecessary to urge the advantages of hospital care of complicated and operative obstetric cases. One of the most obvious results of our efforts in maternity dispensary work has been the changing attitude of the foreign element toward the hospital. Seven or eight years ago when these women were advised that they needed hospital care, the patient, her family and friends united in a terrified protest. The mere mention of hospital seemed to conjure up unknown terrors. Today we rarely fail to find some friend speaking the language to tell them of kind treatment, of lives saved, of successful deliveries, etc., in the hospital. Many lives, particularly of babies, are saved by this change of attitude. The altered feeling of the general public toward hospital attention in complicated labor cases may be traced, in no small degree, to the filtering through the masses of this information.

The benefits conferred by a well organized, carefully conducted maternity may be enumerated as follows:

- 1, The lives and future health of the patients, both mother and babe, are protected.

- 2, A proper standard of obstetric work is taught to those most needing this teaching.

- 3, The inbred fear of the hospital is replaced by a feeling of confidence, and many lives, particularly of babies, are saved thereby.

- 4, Students, hospital internes, etc., become familiar with the correct method of conducting a labor in the patient's home.

- 5, The nurse in training is shown how asepsis, cleanliness and scientific attention may be given in the home.

- 6, The community at large benefits by the preservation of life and the conservation of health of its members as well as by the greater skill acquired by two essential members of any community—the educated physician and the well trained nurse.

1834 East 65th Street.

Traumatic Cataract of Unusual Origin.

By IRA A. TRIPP, M. D., C. M., Cleveland.

There is probably no accident so common as the embedding of a foreign body in the cornea, particles of stone, iron, steel, brass, coal, wood and glass being the most frequent. Foreign bodies may injure the epithelium only or they may penetrate deeply into the cornea. If aseptic, very little harm results except for the scar formation when the wound is deep. If septic, they may set up a rapidly destructive necrotic process, ending frequently in iritis, perforation of the cornea with its attendant evils or panophthalmitis.

The majority of foreign bodies are minute particles which may defy recognition until after oblique illumination, with or without the aid of a staining solution, or by an X-ray examination for the deeper ones. Pain, photophobia, lacrymation and pericorneal injection follow the injury.

I think every ophthalmic surgeon dreads injuries by glass more than all others. The following case is an example of what may follow an apparently slight injury to the cornea:

A Lake Shore engineer, aged thirty years, presented himself because of an injury to the right eye, produced seventeen hours previously by the bursting of a water gauge on his engine. The eye was quiet looking, but painful at times. Vision was 20-40, the media were clear, the tension was normal. On dilating the pupil two slight scratches were readily seen on the cornea; these did not stain. Neither could anything be felt with a probe lightly carried over the area. The X-ray examination showed nothing.

This condition remained until the tenth day, when the patient rubbed his eye while awakening from sleep and was frightened to hear something pop. This sound was accompanied by pain and by the discharge of fluid over the cheek. When next I saw him the anterior chamber was shallow, the tension was minus and there was a slight loss of aqueous humor. Vision was now the fingers at five feet. The pain was very severe, requiring opiates and bandaging. I could

Presented at the meeting of the Ophthalmological and Oto-Laryngological Section of the Academy of Medicine of Cleveland, Friday, January 26, 1912.

not as yet find any foreign body and the eye improved daily. The anterior chamber formed and the tension became almost normal. With the ophthalmoscope a cataractous lens was found. Vision gradually grew dimmer, accompanied by great pain of a lancinating character. It was now fifteen days from the first injury and an enucleation had to be done, on account of the agony and of the fear of a panophthalmitis, an hypopyon having formed.

433 Osborn Building.

The Present Status of Therapeutics.

By J. B. McGEE, M. D., Cleveland.

The leading factor in the therapeutics of today, as compared with that of a few decades ago, is its essentially scientific character; research and study are continually yielding contributions of value, and practically all our recent and notable advances have been made along scientific lines. It is the day of experimentation, and the continued activity shown promises additions of appreciable worth, as well as confirming frequently the estimate of experience. Pharmacology, biology and chemistry, the last almost wholly in a synthetic way, have constituted our main aids, and under their influence the skepticism of a relatively recent period, and the pessimism which for a time dominated practice, are steadily disappearing as our therapeutic resources increase and improve. While it has been generally said that therapeutics has advanced less than other medical branches, our newer remedies indicate that we may confidently expect still further progress, and the recent brilliant discoveries with which we are all familiar certainly warrant our faith in its future. While the notable salvarsan of Ehrlich may not have fulfilled all of its earlier claims, we now better understand its limitations, know that within certain limits it seems to be supreme, and that its production has given a new impetus to therapeutics, as witness the recent extensions along the lines of chemotherapy, similar agents giving promise in other conditions, as tryparo-

Address of the retiring President of the Alumni Association of the Medical Department of Western Reserve University, delivered at the annual meeting held Tuesday, June 12, 1912.

san in tuberculosis, and the probable benefit conferred by selenium in carcinoma. We have learned the value of vaccines in local and general infections, and that, although we cannot regard tuberculin as a specific, it is certainly a decided aid to the usual methods employed. The field of organotherapy too, with the newer and broader applications of the ductless glands, alone or combined, their remarkable remedial action, and the knowledge of the stimulants to their secretion, is also of recent achievement.

The laboratory has aided greatly in the evolution of the newer therapy, in fact is its very essence, although we still find agents and methods, amply demonstrated to be of value, which science thus far fails to explain. Pharmacology, however, is in many cases our main reliance in the selection and also administration of remedies in clinical therapeutics. We are not only indebted to it for a knowledge of our new agents, but also far more closely defining the action and limits of some of the older ones, as digitalis and others. The intimate relation which it bears to treatment is thus quite clearly stated recently by Sollmann: "The analysis of well defined clinical data will set tempting and highly fruitful experimental problems to the pharmacologist, and his results in turn will set further problems for the clinician, and thus the two will be mutually helpful toward a common advance of therapeutics." Their attitude then is one of cooperation in the application of our remedies and will greatly enhance therapeutic efficiency.

Immunity is today on a scientific basis, and one of the most significant and helpful facts we have learned of late is that of the recognition of the organism's own means of defense against invasion or, as it has been aptly termed, "the therapeutics of self-repair." We have ascertained too that we should not disturb too decidedly this remedial resistance, lest our efforts do harm. "It is the knowledge of when to let alone and when to interfere, that constitutes the art of therapy." We all recognize cases and conditions where noninterference is the line to follow, but in which the rise of sudden changes may require prompt interference with active agents to insure relief or avert danger.

As to our drugs, on which we still largely rely, in spite of the value of physiologic therapeutics in certain conditions,

we are perhaps somewhat hampered by the number of new remedies introduced, mainly from a synthetic source, and while some prove worthy of professional sanction many are advanced without adequate or trustworthy trial to warrant their acceptance. One who can look backward over a third of a century of practice and can recall how relatively few remedies of value remain of those presented during that time, may perhaps be pardoned for assuming a rather conservative position in this connection. One is apt to show a marked preference for those agents which have proved efficient and to see no special reason for change unless a new value is practically demonstrated. Still it is to this source that one must look for a large number of our remedies in the future, and it only remains to choose those which by ample trial by competent authority have been shown worthy of retention. The Pharmacopeia and National Formulary embody essentially all the drugs and preparations which we usually require, but as it is sometimes a number of years before the admission of certain agents after they are well known, and others, although found of merit, may be too limited in their general use to warrant inclusion, the personal element of discrimination and choice is as essential and evident here as in the intelligent application of any of our other lines of therapeutic resource. The tendency of the profession is at present to restrict the number of our drugs as much as possible and to have their uses more clearly defined. Such elimination should be especially of aid at the outset of the student's course, a thorough knowledge of a fair number of the standard drugs giving a far better practical foundation than a superficial acquaintance with many. While the use of drugs may have been at times carried to an extreme, and while at times too they may fail us in the full production of their desired effects, I believe there is no question as to their worth when used with discrimination, and that the more thoroughly we understand them the better we shall be able to employ them, and the more satisfactory results we shall obtain. With a knowledge of those on which we can rely, knowing too their limitations, for it is evidently as essential to know what a remedy cannot accomplish as to recognize what it can, we can have more confidence in their prescription. As our specifics are as yet few in number, we are still compelled clinically to rely largely upon what, for

want of a better name, we term symptomatic treatment; and up to a certain point and within certain limits this is an essential factor in successful practice. While perhaps somewhat empirical in character, and followed because we cannot always recognize the primary cause, an intelligent appreciation of the character of such symptoms will often indicate the most successful line of treatment, apart from the immediate relief conferred; or as expressed by MacKenzie "the conception of the nature of the reflex phenomena may give a more direct aim to our therapeutic endeavor."

Medicine cannot be dogmatic, it is not an exact science and as yet its art is in advance of its science in daily use and calls upon science for its aid. Scientific accuracy in therapeutics is the ideal toward which we are tending, but we can scarcely hope to reach and realize it because of the varying character of the factors involved in so complex a problem. The personality of the physician himself, difficult to define, is a recognizable influence in certain conditions. The individual factor of the patient is also a variable one, and the difference in resisting power and in the character of tissue response has an appreciable and varying effect on the action of our drugs. With our attention so strongly centered on the other factors, we are perhaps apt to lose sight of the influence of the personal element in the case. The selective action of different drugs in the same class and the choice of preparation or presentation may all affect the therapeutic result. As to the latter, in regard to choice, the simpler and preferable method is that of the active principle when it practically represents the remedy, but otherwise a freshly assayed and standardized preparation of the entire drug would seem best. With a full recognition of the remarkable results of experimental investigation and of the great debt we owe to this source, the fact remains, however, that we still have quite a number of remedies, coming to us through the so-called practical channels of clinical observation and experience, and whose worth is so generally conceded by the profession that we cannot ignore them, although science may fail to interpret their method of action in a satisfactory way. Some of our standard drugs are still prescribed on an apparently empirical basis, although it is an empiricism which experience justifies.

So then we are lead to the conclusion that a certain amount of judicious empiricism would seem to be an essential part of

successful therapy on the one hand, as science is upon the other, the best type of therapeutics today combining both. We cannot really dispense with either, for while we must unquestionably accept the results derived from a scientific source, we can by no means afford to discard the knowledge which comes to us with the testimony of professional tradition in its favor.

420 Rose Building.

Syphilis in Pregnancy.

By WM. THEODORE MILLER, M. D., Cleveland.

The part played by pregnancy upon syphilis is a minor one when compared with the effect of the disease upon pregnancy. It may be stated as a general rule that the greater the period by which the infection antedates conception, the less will be the effect upon pregnancy, provided always that the woman is not undergoing an acute exacerbation of the disease. In this case the effect will in all probability be a most severe one.

Unfortunately, in the gathering together of statistics in regard to the effect of the infection upon pregnancy, we are hampered by the fact that our figures are based upon grouped cases, and not separated with regard to the time at which the disease was acquired. For that matter, this would be impossible. We have therefore to examine the question from two standpoints; first, when the disease is acquired a short time prior to or during pregnancy; and second, when pregnancy occurs in an old syphilitic.

For purposes of convenience the following classification of the ways in which pregnancy is affected by syphilis may be adopted.

1. Early abortion. This is by far the most common. It is impossible to compile figures which will be by any means correct in regard to the number of early abortions caused by syphilis. However, we have at hand the following facts:

About one out of every eight pregnancies terminates in

an abortion, that is excluding the induced ones, which swell the figures to a considerable proportion. From Fournier's cases of known syphilitics becoming pregnant, out of 200 pregnancies among 100 different women, 140 or over 70 per cent aborted.

Chaupentier reports 781 cases of whom 302 or 40 per cent aborted in the early months. Insomuch as these cases were probably undergoing some sort of treatment for the disease, a correct percentage would probably be much larger.

In those cases which have recently acquired the disease, we find the entire ovum affected, both placenta and fetus being full of spirochaetae. The ovum dies and the uterus, with its well known intolerance for a foreign body, casts it off. If the disease remain untreated, this same state of affairs may be the result through succeeding pregnancies. As the infection becomes less and less virulent, the overwhelming of the ovum with toxins and spirochaetae becomes less marked, and the fetus survives for a longer period. However, the tendency to abort at a given period has been established, so that living fetuses may subsequently cast off at that period of pregnancy, despite the fact that syphilis has become inactive in the mother.

2. Premature delivery of a profoundly syphilitic macerated fetus, living or dead, the so-called syphilis neonatorum. In this case, the toxemia within the fetus or the actual destruction of functioning placenta has been a slower process through attenuation of the virus in the mother. In these cases, we find both placenta and fetus affected. The characteristic appearance of the macerated fetus and of its typical beefy placenta requires no description. For syphilis acquired during the course of pregnancy this is the most common outcome. The fetus and placenta are overwhelmed not only by the toxins transmitted from the mother, but by those produced by the rapidly multiplying spirochaetae in the body of the fetus. The actual death of the latter depends perhaps not as much upon its own condition, as upon that of the placenta; we frequently see a fetus but little affected, and yet the placenta is so pathological that fetal death was the inevitable outcome. On the other hand, should there be enough placenta functioning to sustain life, the fetus may be carried to term or even born alive. I have recently seen two cases in which fright-

fully macerated fetuses were delivered at or about term. Both of these were alive at birth. The examination of the placenta in both cases showed nothing to the eye, beyond a characteristic lobulation. No microscopic examination of the placenta was made in either case, but from the livers of both fetuses spirochaetae were recovered in large numbers.

3. The delivery at or before term of an apparently normal child. In these cases, the placenta alone appears to be affected and may be so either through a toxemia acquired from the mother, or through the growth of spirochaetae in its own substance. Although the product of such a birth is usually alive, it may succumb some time prior to birth, not from a toxemia arising either in itself or in the placenta, but from there being insufficient functioning placenta for the maintenance of life. It is possible, of course, to conceive of such a child being born without a sign of syphilis and without the subsequent development of it, but such cases must be exceedingly rare. The usual clinical history of such a case is that of the development within three weeks of well marked syphilitic lesions. It is doubtful whether it is possible for a child to be born with a syphilitic placenta and not have at least a few organisms present in it. These for some reason or other develop rapidly after birth, giving rise to the above mentioned syphilitic lesions.

4. The class of cases in which there are delivered, usually at or about term, a fetus and placenta free from demonstrable spirochaetae. It is at once apparent that, in the majority of cases, such a birth takes place late in the course of the maternal disease, when few if any organisms are present. From such a mother may come a child which is and remains to all intent and purpose free of the disease, and the reason is self evident. Such is not the rule, however, in the majority of cases, for here we find the so-called retarded syphilis most prevalent. Not only do these fall within this classification, but those cases which exhibit a natal toxemia should also be placed here. These have no active syphilis in the sense that spirochaetae are actually growing and producing a toxemia but some sort of toxin has evidently been transmitted from the mother through the placenta. *In utero* this gives rise to various malformations, and in fact were the Wassermann test to be done upon the parents of all malformed fetuses, a

large proportion would in all probability prove positive, for the test has given positive reactions in practically all forms of congenital malformations. In addition to the monstrosities there belongs in this class a large number of puny infants, the so-called cases of marasmus, more properly infantile atrophy. One of the most marked tendencies of these babes is that to hemorrhage and jaundice. Should the child survive the early years of life the signs of retarded syphilis may become apparent, but in reality only a small proportion of these cases survive long enough to develop these symptoms.

The impossibility of hazarding more than a guess at the fetal and infantile mortality of syphilis is apparent, but from the facts we have the following conclusions may be deduced: 1, Most syphilitic conceptions result in abortion during the early months. 2, Of those pregnancies progressing beyond this stage, the majority eventuate in stillborn macerated fetuses. 3, Of those which survive intrauterine life, but few reach maturity, and practically none without signs of syphilis.

The above classification is made upon the assumption that we are dealing solely with maternal syphilis, disregarding entirely the question of transmission from the father. According to our old belief, the mother might and in a great number of cases did remain entirely free from the disease. Prior to the introduction of the Wassermann reaction we were bound by the dictates of Colles' law. The law as propounded by Colles still holds good, yet, with our advanced knowledge of the facts, we are able to see just why it is possible for a woman bearing a syphilitic fetus to nurse that child without contracting syphilis. The reason is, of course, that a woman already suffering from syphilis cannot be infected by a child sharing that syphilis with her.

The majority of observers contented themselves with the assumption that the mother had acquired immunity through the carrying of an infected fetus *in utero*, immunity but not active syphilis, supposedly passing through the placenta. Although in some instances it was self-evident that the mother herself was infected, it was deemed perfectly possible for a woman to give birth to a syphilitic child without herself having contracted the disease. To be sure, many of these women did subsequently develop signs of latent syphilis but this fact could be readily explained through subsequent infec-

tion by the husband. The weak point in the argument lies in the fact that, provided they were subsequently contaminated, they showed no signs of new infection after pregnancy. Every medical clinic sees a number of women late in life presenting typical tertiary luetic lesions together with a positive Wassermann reaction. They give a history of the bearing of macerated fetuses or of repeated abortions, and yet they are perfectly honest in their statements, that they have failed to notice either the original or the so-called secondary lesions. It is certainly just as tenable an hypothesis that they should have been infected prior to or during conception, as that they acquired the disease from the fetus itself. With the employment of the Wassermann reaction, we have been able to throw aside our former notion in regard to paternal syphilis, that is, the transmission of the disease directly to the ovum, which alone becomes infected without infection of the mother. Of course, the mother of every macerated fetus, or every woman who has repeated abortions, does not give a positive Wassermann reaction. But in every case, so far as I know, where there have been undisputed signs of syphilis in the placenta or fetus the mother has given the reaction. On this account it is highly probable that no woman gives birth to a syphilitic fetus without herself being subject to the disease. Those who maintain that she receives it from the fetus have the burden of proof yet with them; but whether derived from fetus or husband, she nevertheless has syphilis.

1110 Euclid Avenue.

Some of the Later Advances in Pharmacology.

By J. D. PILCHER, M. D., Cleveland.

(From the Pharmacological Laboratory of Western Reserve University.)

Below are reviewed a few of the many interesting advances in the domain of pharmacology. These particular subjects were chosen as being of interest to the readers of THE JOURNAL.

I: Saccharin.

The Secretary of Agriculture put the following questions to the Referee Board of Consulting Scientific Experts¹:

“(1) Does a food to which there has been added saccharin contain any added poisonous or other added deleterious ingredient which may render the said food injurious to health (a) in large quantities; (b) in small quantities?”

(2) If saccharin be mixed or packed with a food, is the quality or strength of said food thereby reduced, lowered, or injuriously affected (a) in large quantities; (b) in small quantities?”

The “small” dose was taken as 0.3 gram (5 grains); the “large” dose from 0.75 to 1.5 gram per day. As saccharin has a sweetening power about five hundred times its weight of cane sugar, this would correspond to a daily intake of 150 to 750 grams (5 ounces to 1½ pounds) of the latter. This of course has no reference to the relative food values of the substances.

The conclusions reached by the Board are as follows:

“(1) Saccharin in small quantities (0.3 gram per day or less) added to the food is without deleterious or poisonous action and is not injurious to the health of normal adults, so far as is ascertainable by available methods of study.

(2) Saccharin in large quantities (over 0.3 gram per day and especially above 1 gram daily) added to the food, if taken for considerable periods of time, especially after months, is liable to induce disturbance of digestion.

(3) The admixture of saccharin with food in small or large quantities has not been found to alter the quality or strength of the food.”

These conclusions were based on the independent work of Professors Christian A. Herter and Otto Folin and their associates, extending over a period of five months. In all there were twelve normal male subjects who took saccharin, with five control subjects. The saccharin was given during the meals. Saccharin is acid in character; to avoid the irritant action on the stomach it was administered in one series as the sodium compound, in the other series as the free compound. No material difference on digestion was noticed between the free and the combined saccharin. The subjects maintained their usual diet during the experiments. In both series the men remained per-

¹ Influence of Saccharin on the Nutrition and Health of Man—*U. S. Department of Agriculture, Report No. 94, November, 1911, pp. 375.*

fectly well and all but one gained somewhat in weight; in this one exception the loss was immaterial. "No significant deviation in the nitrogenous metabolism is brought about through the action of saccharin even in considerable doses" (Herter). There were no significant pathological changes in the urine. In large doses a change in the reaction of the feces was noted, either a decrease in alkalinity or an absolute acidity. This change persisted well into the after periods of the experiments and hence cannot be due to saccharin *per se*; the manner of the action has not been explained. This did not lessen the activity of the putrefactive bacteria, as shown by a slight increase in the indican and aromatic oxy acids in the urine.

Saccharin, in the same concentration as would be used for sweetening, had no material influence on the action of the various ferments; the hydrolysis of starch by saliva and pancreas juice, the peptic digestion of egg albumin, the tryptic digestion of casein and the pancreatic digestion of fats proceeded normally.

The fate of saccharin in the body: From 75 to 90 per cent of the ingested saccharin was recovered from the urine; this recovered saccharin possessed the characteristic sweet and bitter taste of saccharin (saccharin in strong solution is bitter). The facts show that saccharin is probably eliminated unchanged. Small quantities were secreted into the intestinal tract of rabbits.

It is well to note that this exhaustive report deals with the use of saccharin in health and not in disease. As a sweetening agent in diabetes von Jaksch² states that he found it poisonous in many diabetics; Cantani³ says that it may be perfectly harmless. At any rate a trial would not seem to be contraindicated.

II: The Constipating Action of Morphin.

Employing Cannon's method of observing gastric and intestinal movements (the X-ray examination of animals fed with soft food intimately mixed with bismuth subnitrate), Magnus⁴ has explained the constipating action of morphin in brief as fol-

² Von Jaksch, Die Vergiftungen, *Nothnagel's Spezielle Pathologie und Therapie*, I.

³ Cantani, *Deutsche med. Wochenschr.*, 1889, XV, 278.

⁴ Magnus, Die stopfende Wirkung des Morphins, *Pflügers Arch.*, 1908, CXXII, 210.

lows: Morphin caused a spasm of the sphincter antri pylori, thus withholding the food from the pylorus and delaying its passage into the duodenum. The passage of food through the cardiac sphincter was also delayed somewhat; there was little effect upon the pyloric sphincter. The intestinal movements were slightly lessened in some cases, unaffected in others; there was little effect upon the colon.

To enter somewhat into the details of the experiments, cats and dogs were employed. As is well known, cats are excited by morphin but dogs are narcotized; however, the action of morphin upon the gastrointestinal movements was similar in the two series. In the normal animal the food fills both the gastric fundus and pylorus, the fundus gradually forcing it into the pylorus and in about fifteen minutes the first part passes into the duodenum; the latter process reaches its maximum in about two hours and shortly afterward the chyme appears in the colon. The process is complete in an average of eight hours. With morphin the passage of the meal from the esophagus into the stomach was delayed in about half the experiments; a maximum delay of thirty minutes was reached in one experiment, the normal time being one minute. However, most striking was the behavior of the food in the stomach. Instead of filling both parts of the organ promptly the food remained in the fundus on an average of three and one-half to six hours (maximum eight hours), delaying the initial passage into the intestine over one hour. The intestinal peristalsis was practically normal. When the morphin was administered with the stomach full the mid part of the stomach (sphincter antri pylori) contracted fairly sharply, dividing the organ into two parts. The fundus became distended from the secretion of gastric juice and by gas formation; in normal animals the cardiac sphincter is relaxed and the gas eructed, but morphin prevented this relaxation. The pyloric sphincter was not influenced by morphin; however, the completion of the passage of food into the duodenum was delayed from an average of three hours in normal animals to a minimum of seven hours and a maximum of twenty-five hours with morphin. The food was passed into the intestine gradually, in small portions and in a more liquid state than in normal animals.

Action on the intestine: Morphin administered about two hours after feeding, when the greater part of the meal had

reached the intestine, caused a delay in the emptying of the small intestine in about half the cases. The cause of this was not clear; the ileocecal valve was not tonically contracted. It will be recalled that morphin usually causes a brief stimulation of peristalsis in dogs as shown by early defecation and vomiting. On excised intestine morphin in low concentration causes increased movement and tone of the strips. Morphin had little if any effect upon the colon. The tincture of opium gave practically the same results as the pure alkaloid.

Magnus explains the checking by opium of diarrhea from disease of the intestine as due to the more perfect gastric and duodenal digestion and the more gradual passage of the gastric contents into the duodenum. Morphin also increases gastric secretion but lessens that of the pancreas. The diarrhea in milk fed cats was checked by morphin. When fed milk the whey and sugar rapidly passed into the duodenum, causing diarrhea, while most of the albumin and all the fat remained in the stomach. Morphin delayed the process until the former and the latter were intimately mixed. In certain pathological conditions, as colocynth diarrhea, morphin inhibits the peristalsis in both the large and the small bowel and also checks the inflammatory exudate. It may well be that in its other actions, in pathological states, morphin may act quite otherwise than it does in the normal subject.

III: The Action of Several Types of Cathartics.

Magnus⁵ and his associates used Cannon's X-ray method in the study of several types of cathartics with the following results:

Castor Oil (a neutral oil): Catharsis is due mainly to motor stimulation of the small intestine. As a neutral oil castor oil delays the passage of food through the stomach; rancid oil hastens the passage. The intestinal contents may be expelled into the colon within two hours instead of the normal eight hours. In the colon the normal antiperistalsis is allayed, preventing the thickening of the contents, and this results in a more rapid expulsion of the feces.

⁵ Magnus, Die Einfluss der Abführmittel auf die Verdauungsbewegungen, *Therapeutische Monatshefte*, 1909, XXIII.

Senna (anthracene derivative): has no action above the colon. It inhibits the normal antiperistalsis of the colon and initiates the defecation reflex.

Colocynth (drastic purge): This cathartic stimulates peristalsis in the small intestine, inhibits antiperistalsis in the large intestine and causes an effusion of fluid throughout the entire intestinal canal. The intestinal contents may be driven into the colon within half an hour. The process results in a prompt, watery stool.

IV: Calomel Diuresis.

R. Fleckseder⁶ presents the following explanation of calomel diuresis: In a specific manner calomel prevents the lymph absorption in the small bowel for prolonged periods and by its irritant action hastens the liquid contents of the small intestine into the colon where the fluid is rapidly absorbed, producing diuresis. The diuresis was invariably accompanied by hydremia. He thus attributes the calomel diuresis purely to extrarenal causes. This is contrary to Jendrassik, who attributed the diuresis to injury of the tubular epithelium of the kidney, which prevents the reabsorption of the glomerular secreted fluid. This process would result in thickening of the blood, whereas Fleckseder invariably found hydremia.

The experimental data are as follows: Calomel administered by mouth to rabbits increased the urine flow several (six to seven) times. Other insoluble preparations gave similar results. Subcutaneous or intravenous soluble preparations in the ionic form, if not too toxic, also resulted in diuresis. The diuresis may start within an hour and be of short duration, or it may be delayed until the following day or later. Wet fed animals react promptly; dry fed by late diuresis. Diuresis resulted when calomel was given with water insufficient in itself to cause diuresis. Ileostomy prevented the hydremia and diuresis by causing great loss of body fluid. The diuresis, therefore, depends upon the liquid reaching the intact colon, where it is rapidly absorbed and produces hydremia and diuresis. If calomel prevented lymph absorption in the small intestine one might infer that it would also injure the water absorbing mech-

⁶ R. Fleckseder, Die Kalomeldiurese, *Arch. f. exper. Path. u. Pharm.*, 1912, LXVII, 407.

anism in the colon. This did not seem to be the case in rabbits. Aside from the constant hydremia disproving the renal reabsorption theory of Jendrassik, the presence of a mere trace of mercury in the urine during early diuresis, at a time when there was considerable in the gut, would seem to disprove the renal irritation theory of calomel diuresis.

Atropin lessened calomel diuresis by preventing the increased peristalsis and by checking the secretion of the intestine. Why morphin, which also decreased peristalsis, did not lessen diuresis is not explained. In normal man calomel does not result in diuresis as the short colon does not give time for the absorption of the water; rather diarrhea is the result. Cases of hydrops, from cardiac disease, are reported in which calomel caused diuresis. This is explained by the diarrhea opening the portal lymph and blood vessels, giving an opportunity for the thickened blood to receive the hydrops fluid from the tissues, diuresis resulting. Whether calomel in such cases ever causes diuresis without diarrhea was not discussed. The result of the administration of mercury other than by the alimentary canal in hydrops animals with the intestine excluded would be interesting, but such experiments are not reported.

Other cathartics do not cause diuresis, as they do not paralyze the lymph absorption of the intestine in the complete specific and lasting manner of calomel.

V: Ergot.

During the past four or five years much of the confusion relative to the composition and the physiological actions of ergot has been cleared away, especially by the English workers, Barger, Carr and Dale.¹ The most important action of the drug, name-

¹ G. Barger and H. H. Dale, Ergotoxin and Some Other Constituents of Ergot, *Biochem. Journ.*, 1907, *II*, 240.

G. Barger and F. H. Carr, Alkaloids of Ergot, *Journ. Chem. Soc.*, 1907, *XCI*, 337.

H. H. Dale, On Some Physiological Actions of Ergot, *Journ. Physiol.*, 1906 *XXXIV*, 163.

G. Barger and H. H. Dale, Presence in Ergot and Physiological Activity of B-imidazolylethylamine, *Journ. Physiol.*, 1910, *XI*, 1. (*Proc. Physiol. Soc.*, p. xxxviii).

ly, the powerful stimulation of smooth muscle of the arteries and uterus is borne by the alkaloid *ergotoxin*. The many active principles of former workers probably consist of impure preparations of this alkaloid.

Actions of ergotoxin: By a direct action on the arterial muscle the intravenous injection of ergotoxin results in a considerable and sustained rise in blood-pressure. Large doses at the same time paralyze the sympathetic vasoconstrictor endings, leaving the vasodilator endings intact, so that during the rise in blood-pressure sympathetic stimulation, either electrically or by epinephrin, results in a fall in pressure. This vasoconstriction explains the gangrene producing action of ergot, which may result as well from the oral administration of the pure alkaloid as from the pharmaceutical preparations. Ergotoxin also causes a tonic contraction of the pregnant uterus, which is the only practical therapeutic use of the drug. It may produce abortion not by causing rhythmic uterine contractions but by the tonic contraction causing the death of the fetus, which is expelled later after the manner of any dead fetus. The alkaloid is rather unstable and tends to disappear from old solutions. It is but slightly soluble in aqueous solutions.

Of the other principles in ergot, the crystalline alkaloid *ergotinin* is inactive but is readily converted into the active hydrate or ergotoxin. There are other principles in ergot which are, however, not peculiar to this drug: *p-hydroxyphenylethylamine*, which is produced by the action of various micro-organisms, is a vasoconstrictor and causes relaxation of the nonpregnant uterus; *b-imidazolylethylamine* causes tonic contraction of the isolated uterus, and this is also formed by bacterial action on meat. Finally, cholin is present in ergot; this principle is a cardiac depressant and tends to counteract the vascular stimulation of ergotoxin.

Hospitals and Medical Teaching.

"Hospital trustees in the past have dealt in a somewhat cautious spirit with medical schools in the United States, and this attitude is not to be wondered at, since these schools have in most cases been proprietary concerns, and in the absence of effective entrance requirements the class of students enrolled in them was often not of a character that a hospital could admit to its wards. The reorganization now going on, however, in medical education in this country makes it possible gradually to improve clinical training, but the hands of the universities seeking this progress are tied so long as they are required by the trustees of hospitals to utilize the services of the hospital staff of physicians and surgeons who have been chosen without regard to their fitness for teaching or for research. As matters now stand in the United States, it is important that hospital trustees either do more for medical schools, or do nothing. They should do more for such medical schools as enroll a competent student body, provide adequate facilities and staff for instruction in the underlying medical sciences, and are prepared to assume the expenditure involved in placing clinical education on a sound basis. For medical schools that are upon a proprietary basis, even though they be under the shelter of a college or university, the hospitals should do nothing. In taking this stand, the hospital trustees would not only help the real advancement of medicine, but they would also serve the true interest of the hospitals themselves, for wherever the medical school is in a position to comply with the conditions just stated, the hospital will be helped in every way by close and liberal affiliation. It is entirely in the interest of the sick themselves that the privileges of instruction shall be given to a good medical school The patients will in the long run profit by such a relationship, and this notwithstanding the fact that the right of the patient to decline to be used for teaching purposes should be scrupulously respected. On the other hand, wherever the medical school is unable to comply with the requirements I have mentioned, it is in no position either to aid the hospital or to advance education. The trustees of hospitals in the United States in lending the scanty privileges which they now offer to unfit proprietary medical schools are helping to perpetuate the worst education regime in medicine to be found in any country."—Henry S. Pritchett, *Bulletin No. 6, The Carnegie Foundation for the Advancement of Teaching.*

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EDITORIAL

Sewage Pollution of the Great Lakes.

The recently issued Bulletin No. 83 of the Hygienic Laboratory of the Public Health and Marine-Hospital Service has the title, "Sewage Pollution of Interstate and International Waters with Special Reference to the Spread of Typhoid Fever." The Hygienic Laboratory's investigation of pollution of the Great Lakes would seem to be completed with this bulletin, since the previously issued No. 77 (July 1911) considered Lake Erie and the Niagara River. In regard to Cleveland, that bulletin concluded that the local water-supply is periodically contaminated from the Cuyahoga River, but that the completion of the intercepting sewer will remove from the river the 52 per cent of local sewage which now empties into it. But because of the shipping

in the river and of the increasing population of the water-shed the Cuyahoga will continue to have the dangerous and unlovely attributes of a sewer. Furthermore, it was held that the completion of the interceptor will not remove entirely the danger of contamination by our own sewage, since it was believed that the distance from sewer outlet to water intake is not great enough to prevent the flowing of diluted sewage to the intake under certain conditions of wind and current. Fortunately, the very scientific and thorough manner in which the local sewage disposal problem is being investigated leads to the hope that Cleveland will do more with its fecal matter than merely empty it into the lake.

Bulletin No. 83 opens with a comparison of the typhoid death rates per 100,000 of population in European cities and in fifty American registration cities of over 100,000 population. In 1909 and 1910 the average typhoid death rate of thirty-three principal cities of northern Europe with an aggregate population of 31,500,000 was 6.5, and "this includes such notorious typhoid centers as St. Petersburg, which had a rate of 33.7 in 1910." In the fifty registration cities of over 100,000 population in the United States the aggregate population was 20,000,000 and the typhoid death rate for 1910 was 25 per 100,000. "It is clear that in cities which have had safe water supplies for a period of years the rate should not be above 5 per 100,000, unless some unusual condition exists, such as poor control of milk or lack of control over patients and carriers." The inspection and control of the milk supply of Cleveland have been extolled as being the best in the country—and the local typhoid death rate was 13.3 in 1909 and 17.9 in 1910. In Europe a rate of 5 per 100,000 easily attainable, in Cleveland a rate rising in 1910 to 17.9! The words that one would like to use are not found in the dictionaries that can be sent by mail. Human stupidity has taken the path of least resistance and is doing all it can to make a cesspool of the most wonderful body of fresh water in the world; and stupid humanity, likewise with the idea of doing what is apparently easiest, often does not even go to the trouble of drawing its drinking water upstream from its own sewer outlets.

From the summary of Bulletin No. 83 we quote the following:

"There is an undue prevalence of typhoid fever in many cities and towns in the drainage basin of the Great Lakes.

This excessive prevalence of typhoid fever, especially in the winter and spring months, is due in greatest measure to sewage pollution of interstate and international waters used as a source of public water supplies.

Given the sewage pollution of the source of supply, the excessive prevalence is made possible by the use of such water unfiltered and untreated or by the faulty operation or poor efficiency of filter plants. . . .

In many of these cities excessive rates prevail for the group of diseases classified as enteritis or diarrhea. In most of these places a distinct winter and spring prevalence is demonstrable, coupled with a coincidently high typhoid fever rate. This enteritis to some extent seems to be water borne, and the disease sometimes called "winter cholera" is presumably entirely water borne. . . .

In the prevention of the spread of water-borne contagious disease in the basin of the Great Lakes as the problem now stands sewage treatment is secondary in importance to filtration or treatment of the public water supplies. . . ."

A German Council on Pharmacy.

Recognizing the reforms accomplished by the Council on Pharmacy and Chemistry of the American Medical Association, Professor W. Huebner, Professor of Pharmacology at the University of Goettingen and editor of the *Therapeutische Monatshefte*, for some time has been advocating the creation of a similar body in Germany. Such a body having finally been appointed, Professor Heubner points out how impossible it is for an individual practitioner to form a reliable conclusion regarding the value of a remedy and how important it is therefore that these products should be investigated by an impartial body. In discussing this he says (*Therapeutische Monatshefte*, May, 1912): One great difficulty is that the estimation of the therapeutic action of any drug is in itself extremely uncertain, and only extensive statistics of very carefully observed experiences can protect against error. We know from the therapeutics of former centuries that positively inefficient measures may have a great vogue for a long time and in wide circles; on the other hand, science has sometimes disregarded useful curative factors

because it could not at the time find a theory to fit them. It is not always possible to avoid both of these mistakes.

At the same time important progress would be realized if we could obtain certainty and truth even up to this point, that is, if the physician could know the true nature of the substances which he uses for therapeutic purposes. But in this lies the greatest difficulty. The senseless flooding of the market with new pharmaceutical preparations has the inevitable consequence that each one seeks to outshine its competitors. The success of a remedy depends almost entirely on the advertising which it receives. Naturally, every trifle that can speak in its favor is magnified and proclaimed, and every point which might detract from its reputation is carefully kept secret (including its close relationship to old and tried, less expensive preparations); all this is natural, but nevertheless it is misleading. Still worse are the deliberate fraudulent claims which are often found in the advertisements of many pharmaceutical preparations.

Regarding the functions of this German Council and its personnel he says: Even a mere attempt in this line is to be welcomed, such as that which the committee of the Kongress für Innere Medizin has undertaken. Recognizing the pernicious importance which advertising has assumed in the domain of proprietary pharmaceutical frauds, the committee took up the advertisements in the medical press during 1911 and examined these advertisements, classifying them according to certain general rules as "unobjectionable," "objectionable" and "dubious."

Regarding the policy of the *Monatshefte* he says: In our effort to make the *Monatshefte* a guide in the domain of therapeutics, we are going to take advantage of this new state of affairs and we here announce that when our contracts with the present advertisers in the *Monatshefte* expire, they will not be renewed for any product found on the Kongress "negative list," and that new advertisements will in future be tested by the rules adopted by the Kongress committee. The publishers of the *Monatshefte* add a note to the effect that the four other medical journals published in their establishment, including the *Zeitschrift für Kinderheilkunde* and the *Biochemische Zeitschrift*, will have their advertising sifted in the same way.

The members of the Kongress committee are Penzoldt, Professor of Internal Medicine at Erlangen; Gottlieb, Professor of Pharmacology at Heidelberg; W. Heubner, Professor of

Pharmacology at Goettingen and editor of the *Therapeutische Monatshefte*; G. Klemperer, Privat-Docent of Special Pathology and Therapy at Berlin and editor of the *Therapie der Gegenwart*, and Ad. Schmidt, Professor of Internal Medicine at Halle and editor of the *Zentralblatt für innere Medizin*.

The Convulsant Action of Sulphonated Dyes.

Following the discovery of mauve by Perkin in 1856 the aniline dyes assumed great commercial importance. In his address at the dedication of the H. K. Cushing Laboratory of Experimental Medicine Professor W. H. Welch called attention to the importance that this work had had upon the development of bacteriology and upon the study of the causation of disease. As an example may be mentioned the discovery of the tubercle bacillus with the aid of fuchsin and the every day use for diagnostic purposes which is made of the peculiar property that this particular organism has of retaining the fuchsin after treatment with acids, a property based upon the chemistry of the bacillus. Through the experimental work of Ehrlich a number of dyes have become important as therapeutic agents. According to the Ehrlich hypothesis, this destructive action in certain infectious diseases is due, just as is the specific staining of the organisms causing the diseases, to the attachment of the dye to the body of the parasite by means of specific side-chains. In the last issue of THE JOURNAL attention was called to the germicidal action of fuchsin acetate. It was suggested that this action might be due to the chemical instability of this compound, to the dissociation or hydrolysis of the dye by water and to the movement of electrons which follows the conversion of the freed base into a colorless compound and the reconversion of the latter into the colored base by the action of the freed acetic acid. Still other experimental work has indicated that certain of the dyes have a marked action upon the central nervous system and has furnished some interesting physiological data.

Acid fuchsin (Barbour and Abel¹) and other watersoluble

¹ Barbour, H. J. and Abel, John J., Tetanic Convulsions in Frogs Produced by Acid Fuchsin, and Their Relation to the Problem of Inhibition in the Central Nervous System, *Jour. Pharm. a. Exper. Therap.*, 1910, II, 167.

neurophilic, sulphonated dyes (Macht²), produce strychnin-like convulsions in frogs. In normal frogs, the tetanus occurs only after a long latent period (up to twenty-four hours) and requires relatively large doses. If the anterior third of the cerebrum is removed (either before or after the injection), the convulsions occur much more promptly (within thirteen minutes), and very much smaller doses (one-tenth to one-twentieth) suffice. The anterior cerebrum therefore exercises a strong inhibitory effect on the convulsant action of these dyes (much less, if any, on other convulsant poisons). With the cerebrum intact, the latent period is also shortened by voluntary fatigue.

Joseph and Meltzer³ found that the late convulsant action of acid fuchsin, and of morphin, could be greatly hastened, and that a very much smaller dose would suffice, in frogs in which the heart had been tied, the circulation of the blood being thus apparently arrested. This interesting observation is explained by Abel⁴ by the peculiar distribution of the poison. The ligation of the heart prevents the dissipation of the poison in the body and the anterior lymph hearts drive the solution directly into the communicating vessels of the central nervous system. This is therefore exposed to a much more concentrated solution. At the same time, the interruption of the normal circulation and the partial asphyxia increase the sensitiveness of the nervous system to convulsants; for the outbreak of these is hastened even if the heart is excised *after* the drug has been injected.

Senatorial Nonsense.

THE JOURNAL has received a seventy-eight page pamphlet, sent out under the franking privileges of the United States Senate, which bears the title "Speech of Hon. John D. Works of California in the Senate of the United States, Monday and Tuesday,

² Macht, David I., On the Convulsant Action of Some Sulphonated Dyes, *Ibid.*, 1912, *III*, 531.

³ Joseph, D. R. and Meltzer, S. J., On the Convulsant Action of Acid Fuchsin upon Frogs Deprived of Their Cardiac Circulation, *Ibid.*, 1911, *III*, 183.

⁴ Abel, John J., On the Action of Drugs and the Function of the Anterior Lymph Hearts in Cardiectomized Frogs, *Ibid.*, 1912, *III*, 581.

April 29 and 30, 1912," and which deserves more than a mere line in the "Acknowledgments." This wonderfully constructed effort of the honorable Senator from California is supposed to be an argument against the Owen bill, whose aim is "to establish an independent Health Service." In the debate upon this measure as it was originally presented, the same gentleman delivered himself of a speech which was a brief for Christian Science. Of his more recent effort, the speaker says: "At this time I desire to consider it in a broader and more comprehensive way, as it affects not Christian Scientists alone but the whole people."

As a logical argument against the establishment of a centralized Federal Health Service there is little that one can put one's hands upon in the way of refutation, because the speech is so conspicuous in the absence of logical thinking and of real reasoning. The substance of the speech consists of glorification of Christian Science, praise of that latest creature of the "Great American Fraud," the League for Medical Freedom, and abuse of the American Medical Association. As examples of these three types of argument, so-called, the following may be given: "The healing by the action of one mind over another may be classed under the general designation of mesmerism, hypnotism, or suggestion—all meaning practically the same thing—and Christian Science, the one distinctive mode of healing by the operation of the Divine mind according to the teachings of Jesus of Nazareth." "The League for Medical Freedom, a voluntary organization, composed of hundreds of thousands of citizens of all classes in all walks of life, knowing the hypocrisy of the instigators of new legislation on this subject, made common cause against it and have exposed its objects and pointed out the injurious effects of the passage of the proposed bill." "There is abundant evidence . . . that the efforts of the American Medical Association to secure restrictive legislation . . . are selfish in the extreme and intolerant and oppressive."

The honorable Senator from California is one of those unfortunate beings who are still so benighted as to look upon "healing" as the one and only aim of the medical art. Cries for "medical freedom" are not to be wondered at from a mental horizon so restricted, and it is useless to attempt to stifle them. We can only regret that that type of mind can wield any influence upon so important a question in so august a body as the United States Senate; or that there should occur the kind of cerebation which

can build up an argument out of anything so specious as a comparison of the absolute death rates in certain infectious diseases treated medically with the same rates in the insignificant number of cases treated by Christian Scientists; or that a desire to plead for an untrained sect should blind a human being to the advances made by preventive medicine and to the absolute necessity for restrictive legislation for the control of infectious diseases.

Report of the Royal Commission on Vivisection.

Somewhat of a piece with the speech of Senator Works, in that it contains a considerable proportion of pseudo-scientific nonsense, is the "Final Report of the Royal Commission on Vivisection" (Wyman and Sons, London, 1912). The Commission, consisting originally of ten members, was appointed by King Edward VII in September, 1906, "to inquire into and report upon the practice of subjecting live animals to experiments, whether by vivisection or otherwise; and also to inquire into the law relating to that practice, and its administration, and to report whether any, and if so what, changes are desirable." The Commission was the result of the outcry in Great Britain against vivisection in general and against alleged infractions of the Act of 1876. This Act defined and regulated animal experimentation, provided for the licensing by the Secretary of State of those who might be permitted to experiment on animals and prescribed the mode of issuance of special certificates which made possible, in certain definite cases, experimentation upon animals without regard to certain of the general regulations of the Act, such as the use of anesthetics or the killing of the animal before the effect of the anesthetic had disappeared. To us in this country the terms of the Act of 1876 appear unnecessarily restrictive, so much so as to offer serious obstacles to the advancement of scientific medical research.

The report of the Commission itself covers sixty-five pages and we would recommend it to Senator Works and others of his kind as a serious, if somewhat ponderous, attempt to examine and weigh arguments relating to a scientific question. The Commission found it necessary to investigate the question of loose administration of the Act, the bearing of the results of experiments on animals upon the progress of science, pain in experiments on animals, and the moral question concerned in animal experimentation.

In regard to the allegations of improper administration and needless cruelty the conclusions reached are these: (1) "After careful consideration . . . we have come to the conclusion that the witnesses have either misapprehended or incorrectly described the facts of the experiments." (2) "So far as we can judge we believe that holders of licenses and certificates, with rare exceptions, have endeavoured with loyalty and good faith to conform to the provisions of the law." (3) "We desire further to state that the harrowing descriptions and illustrations of operations inflicted on animals . . . are in many cases calculated to mislead the public, so far as they suggest that the animals in questions were not under an anesthetic. To represent that animals subjected to experiments in this country are wantonly tortured would, in our opinion, be absolutely false."

Concerning the relation of experimentation to the progress of science the conclusions are:

"(1) That certain results, claimed from time to time to have been proved by experiments upon living animals and alleged to have been beneficial in preventing or curing disease, have, on further investigation and experience, been found to be fallacious or useless.

(2) That, notwithstanding such failures, valuable knowledge has been acquired in regard to physiological processes and the causation of disease, and that useful methods for the prevention, cure and treatment of certain diseases have resulted from experimental investigations upon living animals.

(3) That, as far as we can judge, it is highly improbable that, without experiments made on animals, mankind would at the present time have been in possession of such knowledge.

(4) That, in so far as disease has been successfully prevented or its mortality reduced, suffering has been diminished in man and in lower animals.

(5) That there is ground for believing that similar methods of investigation if pursued in the future will be attended with similar results."

In regard to the possibility of procuring insensibility to pain, which the antivivisectionists have denied, the Commission concludes "that by the use of one or another or of a combination of several well-known anaesthetics complete insensibility to pain can be secured."

Upon the moral question involved in animal experimentation,

the depraved morality of those who perform and of the medical students who witness experiments upon animals being a matter sickeningly harped upon by the antis, the report says: "After full consideration we are led to the conclusion that experiments upon animals, adequately safeguarded by law, faithfully administered, are morally justifiable and should not be prohibited by legislation."

The conclusions of the Commission, reached after almost six years of deliberation and weighing of evidence, would seem to leave little of the case which the antivivisectionists tried to make.

The report of the Commission as a whole is followed by an eight page "reservation memorandum," signed by three members, who ask "That all investigations upon living animals of an experimental nature, by way of operation, inoculation or infection, etc., shall only be conducted under the sanction and undivided responsibility of the Secretary of State, aided by skilled advisers, and exercising control and supervision by an adequate staff of inspectors." Apparently the majority of the Commission looked upon this recommendation as a needless increase in red tape.

The nonsense portion of the report as issued is comprised in the "reservation memorandum" of one of the members of the Commission, Doctor G. Wilson. This covers sixty-five pages. In extent and in the ease with which scientific observations are negated it outdoes the effort of the honorable Senator from California. Those who wish to learn what a preposterous attitude a certain unenviable type of medical man can hold in regard to modern scientific medicine must read Doctor Wilson's memorandum in full. A few excerpts will give some slight idea of what is in store for them. "My experience of typhoid fever, as it occurs in rural districts, has long since convinced me that sporadic, or scattered cases, of the disease are mostly generated *de novo*." Reiterating a previously expressed view in regard to tuberculin the learned doctor, presumably from the "rural districts," says "I embraced the opportunity . . . of pronouncing it to be an injurious septic decoction, because it was manufactured from bacilli grown in some kind of broth." His views concerning the causation of diphtheria and the antitoxin treatment of the disease are amply illustrated by the following: "I could never admit the *rationale* of the treatment, nor the specificity of the micro-organism associated with the disease from which the serum treatment of the disease is evolved." And there are sixty-

five pages of similar stuff. From them the antivivisectionists may gain such mental comfort as is in their power. Whenever we feel the need of retiring for a short period of time into the Dark Ages we shall read a page or two of Doctor Wilson's memorandum.

Department of Therapeutics.

Conducted by J. B. McGEE, M. D.

Salvarsan: In the May number of the *Journal of Experimental Medicine*, John A. Kolner and J. F. Schamberg write on experimental studies on the administration of salvarsan by mouth to animals and man. They state that it is interesting to note that the administration of the full dose of the drug by mouth does not appear to give rise to symptoms of systemic arsenical poisoning unless the vomiting and diarrhea be regarded as such. They conclude: (1) Salvarsan can be administered in pills, in capsules, and in solution to lower animals in dosage of 0.02 to 0.03 gram per kilo of body weight, and without producing toxic symptoms. A dog received 0.57 gram of salvarsan in pill and capsule form in the course of twenty-nine days without any disturbing effects. (2) After the oral administration of salvarsan arsenic is found in the bile and urine at the end of twenty-four hours but it disappears by the end of seventy-two hours. (3) Twenty-four hours after the oral administration of salvarsan to cats, the number of bacteria in the intestinal tract appears to be reduced, the reduction being most striking in the lower end of the ileum. (4) Salvarsan given by mouth, and likewise intravenously to rabbits in doses approximately those employed in human subjects does not produce, at least within ninety hours following its administration, any appreciable microscopic changes in the important viscera. (5) With the exception of a little vomiting and diarrhea in some cases, salvarsan can be given by mouth up to 0.6 gram to human subjects without producing toxic symptoms. Thus administered, the drug exerts a therapeutic influence, but this influence is too feeble to warrant its use by this route.

Asthma: H. M. McClanahan in the June number of the *American Journal of the Medical Sciences* considers the management of asthma in children, which naturally resolves itself into two divisions, namely, the care and treatment of the child during the intervals and the treatment during the paroxysms. Each case should receive a thorough examination, including an inspection of the entire body, noting any physical defect, with careful examination of the nose and throat. In most cases he has found specific directions as to the diet necessary to the progress of the case, generally a low meat diet with a high vegetable proteid. In the majority of cases, the paroxysm has been induced by an acute attack of bronchitis. Hence, it is important in all cases that the mother should take prompt measures for relief upon the first symptom of a cold, as sneezing or coughing. His rule is that the child be put promptly to bed, have the diet restricted to liquid foods and given an active cathartic. Medication will naturally vary in individual cases, but hot drinks are always indicated. In cases with a catarrhal bronchitis, persisting after the cessation of the acute paroxysm, he has found decided benefit from the use of sodium iodid in from two to four grain doses, three times daily after meals in essence of pepsin. In cases with cough, but without the nervous element, and especially where there is a general adenopathy

or evidence of enlarged bronchial glands he has used with great benefit the syrup of hydriodic acid, U. S. P., in doses of ten or twenty minims. As to the acute attack, in his experience the fumes from the various asthma powders do not give relief in infants, but often aggravate the symptoms by increasing the cough. One drug will not relieve all cases. In two cases in which adrenalin was given, the relief was so prompt as to leave no doubt as to the value of the remedy, while on the other hand, he has seen it utterly fail. The dose for infants is from three to five minims of the 1 to 1000 solution of the adrenalin chlorid. He has found 1/30 grain of morphin sulphate to relieve a severe case, while, in another, three grains of chloral hydrate gave prompt relief. Antipyrine will often aid and he has found oxygen to relieve in some cases. He concludes from the study of twenty cases that the majority of infants and children suffering from asthma ultimately recover. A limited number develop an emphysema, and as a result their general growth is permanently impaired. This is the most serious sequel of asthma, and because of this all cases should receive prompt treatment with a view of lessening the severity and frequency of the paroxysms. The general care of asthmatic children is important, because in most cases a careful study will reveal some exciting cause that can be removed or some morbid condition, as constipation or indicanuria, that can be corrected. Attention to these conditions, with diligence in discovering and removing other possible causes, will enable many asthmatic children to enjoy comparative freedom from attacks, and to develop into happy useful citizens.

Intestinal Antiseptics: *The Medical Council* for June asserts that it is fairly well ascertained, that the upper portion of the digestive tract is not dependent upon bacterial action in the digestive processes. Chemical and ferment action appear to be the important matter here. On the other hand, we are coming gradually to the view that bacteria are of positive usefulness in digestion as it proceeds in the lower intestinal tract. Apparently the normal colon bacilli prevent the undue development of other and more harmful bacteria. It is unwise to interfere with the natural bacterial balance of the intestinal tract and there is nothing to be gained, possibly much to lose, by attempting to render the bowel sterile. All we should do is to *modify* bacterial action in the intestinal tract. The obvious lesson is that we should conserve the processes of nature before we depend upon drugs to limit the number of bacteria in the gastrointestinal tract. The maintenance of proper peristalsis is of first importance, as this physiologic process hastens the food along and does not permit it to ferment and promote bacterial growth. This should not be promoted by using irritant purgatives since an irritated bowel permits an immense proliferation of germ life. Certainly we are justified in two proceedings: limiting the proliferations of bacteria in the mouth and nasal passages, and preventing the administration of food and drink bacterially contaminated. Clean food generally means a clean stomach, and that goes a long way in keeping the intestinal tract clean. Lessening the carbohydrates in the food will do more in overcoming undesirable bacterial growth in the stomach, than will the giving of antiseptics. But when it comes to the use of antiseptics for the intestinal tract, much can be said in favor. One of the main difficulties is expecting too much from them. After the stomach has been looked after the antiseptics may accomplish some good, provided they are not too irritating. They go along with cholagogues very nicely, when the latter are needed. It is pretty well agreed that bismuth and salol are the best intestinal antiseptics, since they reach the intestinal tract in an active condition. If the intestinal tract becomes infected with an overplus of putrefactive bacteria, the use of antiseptics gives better results if the patient

is placed upon a milk diet for a few days. Betanaphthol seems to work out clinically as do the sulphocarbolates or phenolsulphonates, as they are now called, though one should be careful to produce no irritation with any of these agents. There is a tendency to deny all value to intestinal antiseptics. This is probably not to be wondered at, as too much has been claimed for antiseptics administered internally, and sufficient emphasis has not been placed upon the other factors necessary to make antiseptics effective. Given proper conditions and cooperative treatment intestinal antiseptics *are* of value.

The Coleman-Schaffer Diet: *The Medical Review of Reviews* for May believes, in considering our recent knowledge of dietetics, that the advantages that have occurred in the rational treatment of disease are not to be overestimated. The days of starving a fever are waning. Rational feeding dependent upon the caloric needs of the patient is coming into prominence. The liberal diet, containing abundant protein, apparently has a value based upon experience which should give it claim to the attention of the profession. The Coleman-Schaffer diet has been demonstrated to be of exceedingly great value for maintaining the general nutrition and the nitrogen equilibrium of the patient suffering from typhoid fever. The basis of this special form of diet high in protein, with very greatly increased carbohydrate ratio and a moderate increase in the fats, exists in the choice of foods selected for their ready digestibility and assimilability. Food is administered at short intervals during the day and though the quantities are not large their caloric value is extremely high, compared to the old methods of feeding typhoid patients that permitted emaciation, and lessened the resistance of the patient. Fever, emaciation and toxicity apparently are all combated through sparing the body the losses arising from the disturbance of the nitrogen equilibrium. The principal foods utilized are cocoa, eggs, cream, bread and butter and sugar. Cream, and sugar in the form of lactose, form the special foods of high caloric value that make the possibility of establishing this rich typhoid diet safe, inasmuch as they are foods easily assimilated, leaving but small residues and, in general, occasioning but slight intestinal disturbance. The general results that have been manifest through the exhibition of rations carrying between 3,500 and 6,000 calories per day are the lessening of emaciation, the general maintenance of mental stability, the shortening of the period of convalescence, the comparative freedom from unpleasant complications, especially during the convalescence, without any increase in the percentage rate of relapses, and with a lessened mortality rate. The practical value of this form of diet has been established and there seems but little reason for continuing the old regime of withholding adequate nourishment from the typhoid sufferer who must needs maintain bodily vigor to fight against the fever and the toxins. Metabolism experiments may originate in the laboratory, but their utility depends upon their application at the bedside.

Condylomata: D. Watson in the *Medical Record* for May 4 (*via Lancet*) states that the treatment which has been found to be most simple, effective and free from objection in the treatment of condylomata acuminata is the application of lactic acid. The mode of employment depends upon the condition present. In the male circumcision is performed when necessary, pedunculated warts may be removed with scissors, and pure lactic acid is applied to the base after the bleeding has been controlled. Other growths are treated with a continuous 1.0 per cent wet dressing or the occasional application of a strong solution. In the female where there are several large masses, each portion is isolated, and kept surrounded by strips of lint wet with a 0.5 to 1.0 per cent solution. The

base of these growths may in addition be touched at intervals of a few days with the pure acid. Smaller growths are painted with the undiluted acid or a strong solution, and when there is a large field of minute growths, the wet dressing is employed. The dressings are changed as frequently as the amount of discharge requires and at each change the parts are thoroughly bathed with an antiseptic, in the case of females a sitz bath being used. The largest masses wither and drop off, small growths are inhibited, and cure results without the formation of any cicatrices and without pain. The only disadvantage encountered in its use is the general erythema which occasionally occurs, when the treatment is pushed too energetically. This quickly subsides on withdrawal of the acid and substitution of a zinc and calomel dusting powder or ointment. Hence, when large areas are treated it may be well to intermit treatment for two days in each week, and to protect the surrounding healthy tissues with vaseline in order to discourage excessive absorption of the acid. As soon as the seats of infection can be reached appropriate treatment, combined with strict cleanliness, has an important influence in preventing the appearance of fresh growths.

The Bromids: In the April number of the *Therapeutic Gazette* (via *The Journal of Mental Medicine*) Collins states, concerning the treatment of epilepsy, that the effect of the bromids is variable, some patients being quite unable to do without them, while others cannot take them in any form, even when salt is eliminated from the diet and the dose is small. The author believes that the epileptic fit is reflex in origin, and that the bromids act by raising the resisting power of the brain cells to external stimuli. For this reason their use is always fraught with danger to the mental activities of the patient, and one cannot help wishing that the bromid treatment was less extensively used during childhood. He has noted the following bad effects from bromids: great physical reduction, hallucinations, malaise, stupor, degraded habits, edema and cardiac debility, a general lowering of the resisting power to disease, so that sudden changes in the temperature are very likely to be followed by bronchitis and pneumonia. On the other hand, in chronic epileptics who have been on bromid for many years, the omission of the mixture has in many cases been followed by one or more of the following results: Increase in the number of fits, and also in their severity; two cases sprained an ankle during the fits, and in one ecchymosis of the face and neck occurred. Attacks of mania, and a greater degree of malaise following the fits, also were noted. In one case, a female who had been taking strontium bromid, thirty grains, twice daily for several years, the bromid was omitted because she had an attack of pleurisy with effusion. A slight increase of minor attacks occurred as she got better, but after getting up and when convalescent she had 129 minor attacks in a week; potassium bromid, thirty grains twice a day, stopped these very soon. A few cases are quite uncontrollable, without bromid, from mental excitement, contradicting some who are more irritable when they have no fits. In some cases, bromid abolishes the aura of the fit and causes the patient to fall and injure himself in a way he did not do previously. He finds little difference in the two salts he has used principally, viz., strontium and potassium, except that one-half to two-thirds the dose of the potassium seems equal to the larger dose of strontium.

Calcium: Tasker Howard in the *New York Medical Journal* summarizes some of the newer uses of calcium. During the past few years, much has been learned with regard to the role played by the calcium salts in health and disease and, while the subject is not as yet on an altogether sure footing, some of the facts discovered have been utilized

practically in the domain of therapeutics with very satisfactory results. It has been known for over twenty years that the presence of calcium is necessary for the formation of fibrin ferment, which brings about the process of coagulation of the blood or of exudates. Calcium is necessary also for the action of certain other ferments, notably lab ferment or rennin. Hamburger has shown that small doses of calcium stimulate the phagocytic activity of the leucocytes, and finally calcium appears to play an important part in fat metabolism. The most brilliant results in calcium therapy are probably those obtained in the tetany of parathyroid origin. The tetany in parathyroidectomized dogs was shown by MacCallum and Voegtlin to be constantly associated with a disturbance in calcium metabolism, and they further showed that the tetany could be absolutely controlled, not only by the administration of parathyroid preparations, but by the use of calcium as well. This fact has been utilized clinically with brilliant results in tetany following thyroidectomy by a number of observers. In tetany of other origin good results have also sometimes been obtained by its use, and in infantile tetany the reports are rather against its value. Other spasmodic affections, as blepharospasm and other tics, are frequently improved, and Berkeley reports that eighteen of twenty-six patients suffering from paralysis agitans were improved by prolonged treatment with parathyroid, which suggests that calcium might there be of benefit also. The tetany of pregnancy and lactation has been ascribed by MacCallum to abstraction of calcium from the maternal tissues by the fetus, and this theory has been carried further by Drennan who also ascribed the tendency to dental caries and osteomalacia under these circumstances to the same cause. Various hemorrhagic conditions, particularly when associated with delayed coagulability, have long been successfully treated with calcium. In conclusion, it may be remarked that there seems to be theoretical evidence of the value of calcium in a number of varied conditions in which calcium is supposed to be deficient in the body fluids, but that, with the exception of tetany of parathyroid origin, the supposed deficiency remains to be demonstrated. In the meantime we are warranted, by the results so far obtained, in feeling encouraged to follow up the subject from a clinical standpoint.

Review of the Progress of Medicine.

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Cerebrospinal Complications of Influenza.

Numerous reports of cerebrospinal manifestations of influenza during the past five years have emphasized again the very protean character of this disease. Bacteriological methods are responsible for the definiteness of the advances. Historically influenza has been more or less well known in epidemic form for centuries. In fact, an epidemic in 412 B. C. described by Hippocrates may have been influenza. The last of the four great pandemics in the 19th century occurred in 1889-90, following which by the application of bacteriological methods the disease became better known and sporadic cases and smaller local epidemics of influenza have been reported almost constantly since. In 1893 Pfeiffer published an elaborate report on the bacteriology of pulmonary influenza and the specificity of the organism has been extensively confirmed since. Although nervous phenomena have always been closely associated with influenza, a definite infection of the central nervous system has been recognized only within the last twelve or fourteen years—since the more general use of lumbar puncture. Cases of influenzal meningitis were reported shortly after Pfeiffer discovered the organism, but probably the first cases which

were established by bacteriological methods as authentic were recorded by Fraenkel in 1898. Slawyk in 1899 is said to have made the first diagnosis by lumbar puncture during life. Influenzal meningitis, like all other forms of meningitis, is more common in childhood, 56 per cent of twenty-four cases reported by Cohoe being in children under one year of age. To date fifty-eight cases have been reported and only five in adults. The infection is probably never primary in the meninges, but secondary to the pulmonary form or to nasopharyngitis, especially with infection of the accessory sinuses and the middle ear. In one case reported, the meningeal exudate was most abundant at, and seemed to spread from, the region of the cribriform plate of the ethmoid, suggesting this point as the atrium of infection. Again, the meningitis may be part of an influenzal septicemia, of which some thirty cases have been reported with positive blood cultures during life.

Pathologically the meninges of the cerebrum or upper spinal cord are most commonly invaded. The inflammation is usually purulent or seropurulent, although it may be entirely nonpurulent and associated with quite extensive intrapial hemorrhages. In the purulent form the exudate is rather more profuse than in other forms of meningitis, very thick and viscid and yellow in color. In a chronic case reported by Rhea, in which death followed eighty-nine days after the onset of the disease, this exudate became organized and caused internal hydrocephalus, probably by occlusion of the foramen of Magendie or at least by interference with the circulation of the cerebrospinal fluid by the organization of meningeal or ependymal exudate. There may be no macroscopic changes, but minute areas of encephalitis or larger areas characterized by acute inflammatory reaction around the blood vessels of the brain substance and sometimes associated with small hemorrhages here, a condition not usually seen in any acute infectious encephalitis except the extensive hemorrhages reported in cases of septicemia due to *Bacillus anthracis*. More or less characteristic vascular changes occur in the chronic forms. There is a marked fibrous proliferation internal to the internal elastic membrane, probably due to the organization of a subendothelial exudate. This encroaches on the lumen of the vessel and may lead to thrombosis.

The cerebrospinal fluid as obtained by lumbar puncture may not show anything abnormal because of the variation in the distribution and character of the inflammatory process. However, practically, in cases with signs of meningitis, the cerebrospinal fluid is quite uniformly cloudy and escapes under considerable pressure. It usually contains considerable albumen and occasionally a trace of dextrose. On standing a straw colored sediment forms, which shows microscopically a predominance of polymorphonuclear leucocytes with an abundance of both intra- and extracellular organisms, just as in influenzal processes elsewhere. The bacilli frequently resemble diplococci and have been mistaken for meningococci and pneumococci. The influenza bacillus is a very small, short, rather thick organism staining faintly with ordinary dyes and usually showing polar staining. It stains more distinctly and uniformly with 33 per cent carbol fuchsin. It is Gram negative. It is quite variable in size and shows numerous involution forms in culture. It grows only on a hemoglobin containing medium, preferably pigeon blood agar and appears as small, discrete, "dew-drop" colonies. It is not pathogenic for normal guinea pigs.

The symptoms of influenzal meningitis are in general identical with those of other forms of meningitis. The acuteness of onset, the course and duration of the disease may not differ from that of meningococcus or pneumococcus infection. However, some minor variations have been described. The influenzal form is said to have constitutional symptoms out of proportion to the temperature curve as compared to other forms and to be further characterized by a transition of symptoms of cerebral congestion to those of pressure. Convulsions may occur

only at the onset, while in meningococcus infection motor symptoms usually predominate. However, in the hemorrhagic form of influenzal meningitis or encephalitis, there may be hemiplegia, monoplegia or paralysis of any of the cranial nerves. It is probably a more common cause of infantile hemiplegia than has been recognized, especially when following a bronchitis, bronchopneumonia or even a nasopharyngitis.

The diagnosis must be made by lumbar puncture, although the nature of the meningeal infection may be suspected by an associated or antecedent pulmonary influenza with or without involvement of the upper air passages, accessory sinuses and middle ear. The presence of an epidemic is suggestive, but the infection must now be regarded as always present.

The prognosis is bad. Of fifty-eight cases reported, fifty-three died—a mortality of 91 per cent, second only to tuberculous meningitis. Under one year of age, when the condition is most common, it is practically uniformly fatal. In cases of recovery there may be permanent paralysis from destructive lesions in the motor cortex, but there may be marked improvement. In one case blindness of a month's duration largely cleared up.

In the treatment of these cases, Flexner's antimeningococcus serum was used a number of times before the bacteriological diagnosis was made and seemed to have no influence in the course of the disease. Antogenous vaccines have also been used. Injections of 25,000,000 to 40,000,000 several days apart seemed to have no effect or at best to produce a slight temporary improvement in a few cases which later died. Urotropin is also not reliable. Repeated lumbar puncture is valuable in relieving pressure and in removing a considerable quantity of infection. Martha Wollstein of the Rockefeller Institute has made a serum analogous to Flexner's serum, by repeated injections of living virulent cultures of *B. influenzae*, over a period of many months, in goats. She has also produced experimental and usually fatal meningitis in several species of monkeys by intradural injections of virulent cultures. An immune serum could thus be accurately tested. The serum produced from the goat possessed moderate agglutinating and high opsonic power and was capable of arresting the progress of an experimental influenzal meningitis in monkeys, corresponding in clinical, bacteriological and pathological respects to the influenzal meningitis of human beings. The serum must be used early and by repeated intraspinal injections. It is thus possible to rescue monkeys regularly from the fatal effects of subdural inoculation. The serum checks the multiplication of the bacilli and brings about a free phagocytosis. The cerebrospinal fluid becomes clear in three or four days. Such encouraging experimental results give some hope for a successful clinical treatment of the disease.

The occurrence of the more serious complications, such as meningitis, endocarditis, phlebitis, etc., with influenza suggests the possibility of a genuine influenzal bacteriemia. This condition has been demonstrated by blood culture in cases associated with meningitis, etc., and also in cases of simple protracted fever following ordinary influenza, presenting a clinical picture similar to typhoid fever or miliary tuberculosis. Madison recently collected thirty cases in which the influenza bacillus was grown from the blood during life. A good many more cases were reported in which the organism was obtained from the blood at autopsy, especially in cases of secondary pneumonia complicating the acute exanthemata, notably scarlet fever and measles. Meunier also grew the organism in pure culture from the blood during life in influenzal bronchopneumonia complicating measles. Ghedini obtained positive blood cultures in eighteen out of twenty-eight cases of simple influenzal bronchopneumonia by taking routine blood cultures in the early febrile stage of the disease. However, this is a much larger proportion than has been obtained by others. The cases of influenzal septicemia not associated with an active

pneumonia resemble other forms of septicemia. The temperature is usually irregular, with at times several sudden rises accompanied by a chill within twenty-four hours. The spleen is usually moderately enlarged and there have been quite distinct rose spots. There is a moderate leucocytosis, 10,000 to 20,000 if the few reported cases can be taken as a guide. The prognosis is extremely grave. If Ghedini's cases be left out of consideration, all of the remaining cases reported died, except one.

Thrombosis of the venous sinuses has been reported in connection with influenza, especially following a middle ear infection. The latter may be only catarrhal and not require paracentesis. Bacteriological evidence, however, of the specific character of the sinus involvement, either by blood culture or from the thrombus itself, is lacking. Madison obtained a positive blood culture in a case of femoral phlebitis. The symptoms are the usual chills, intermittent or remittent fever, localized tenderness and mental disturbances. Low temperature is said to indicate a complicating brain abscess, which may also be secondary to infection of the accessory air sinuses.

A number of the sequelae of influenza bear out the statement made long ago, that the toxin of the disease has a predilection for nervous tissue. These complications were probably more extensively described during and after the last pandemic than at any time since. Gowers described, in addition to numerous forms of multiple neuritis, optic neuritis and other organic nervous degenerations, a great variety of postinfluenzal psychoses, in fact including almost the entire category of abnormal mental states from any cause. The multiple neuritis may present sensory, motor, vasomotor or trophic symptoms or all combined, but sensory and motor are usually more prominent. The condition is most apt to occur between the ages of twenty-five and forty-five. The great majority of the cases recover and usually within four to eight weeks, although some may be delayed longer. Some cases have died from paralysis of the diaphragm, from spinal involvement presenting the clinical picture of Landry's paralysis; a few from generalized motor paralysis. Optic neuritis is not especially common. There may be a marked retinitis or it may be entirely a retrobulbar neuritis; there may also be paralysis of accommodation. Auditory symptoms are more common, especially aural neuralgia, hyperacusis and temporary deafness. Loss of smell and to a less extent also of taste have also been reported, but may be largely a disturbance of smell by a diseased nasal mucous membrane.

A common form of mental disturbance is an intense depression of spirits or melancholia with more or less loss of memory or marked anorexia. Numerous instances of prolonged trance are recorded, sometimes in a cataleptic condition, sometimes in the form of a lapse of consciousness during active exercise, such as walking a considerable distance. There are practically always neuralgic pains and aches, frequently obstinate insomnia and an utter inability to concentrate the attention. This may progress to marked melancholia or any form of insanity, occasionally with suicidal tendencies. A neuropathic heredity or constitution is an important factor in the more severe or permanent encephalopathies. Old age and childhood are also more susceptible. Aggravated forms of neurasthenia and hysteria are common. Influenza also frequently seems to intensify various organic nervous diseases or to hasten their course, such as epilepsy and paresis. Epilepsy has made its first appearance in a number of instances shortly after an attack of influenza. The various functional disturbances usually appear within a week or two after the termination of the febrile course of the disease. The intensity of the symptoms, however, bears no relation to the severity of the attack. The complications may make their first appearance after a second or third mild recurrence. The prognosis is usually good, unless there is marked debility or neuropathic tendency.

Pharmacotherapy.

This department will contain notes on important official drugs, the descriptions of new articles accepted by the Council on Pharmacy and Chemistry of the American Medical Association, and discussions of allied topics of current interest.

New and Nonofficial Remedies.

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies".

Proferrin is a compound of iron and milk casein. It is tasteless, insoluble in water and dilute acids, slowly soluble in alkalies. It is used as a ferruginous tonic. It undergoes very little change in the stomach but is said to be quickly digested and absorbed in the intestine. Its hematogenous actions resemble those of other organic iron preparations. Dose, 0.13 to 0.3 gram (2 to 5 grains). It is also marketed in the form of tablets, each containing, respectively, 0.065 gram (1 grain), 0.15 gram ($2\frac{1}{2}$ grains) and 0.3 gram (5 grains). H. K. Mulford Co., Philadelphia, (*Jour. A. M. A.*, May 4, 1912, p. 1356).

Tyramine is para-hydroxy-phenyl-ethyl-amine hydrochlorid, the hydrochlorid of synthetically prepared para-hydroxy-phenyl-ethyl-amine. Taken internally or injected subcutaneously tyramine increases the blood pressure; it is also claimed to be valuable for producing postpartum contraction of the uterus. The action is similar to epinephrin, being weaker and slower, but lasting longer. It is marketed in the form of hypodermic tablets (Tabloid Tyramine Hypodermic) each containing 0.02 gram ($\frac{1}{3}$ grain), Burroughs Wellcome & Co., New York (*Jour. A. M. A.*, May 4, 1912, p. 1356).

Tuberculin-Rosenbach is an "old tuberculin" modified by growing in a culture with *Trichophyton holosericum album*. It is claimed to be less toxic but more efficient than other forms of tuberculin. The validity of these claims is not fully confirmed. Kalle & Co., New York (*Jour. A. M. A.*, May 4, 1912, p. 1356).

Cresatin is meta-cresyl acetate, the acetic acid ester of meta-cresol. It is said to be antiseptic and analgesic and is recommended for use in the treatment of affections of the nose, throat and ear, such as follicular tonsillitis, nasal suppuration due to ethmoidal diseases, atrophic nasopharyngeal catarrhs, furunculosis of the external auditory canal and purulent otitis media. Schieffelin & Co., New York (*Jour. A. M. A.*, May 25, 1912, p. 1582).

Bismuth Betanaphtholate (H. K. Mulford Co.)

Cholera Bacterin (H. K. Mulford Co.)

Typho-Bacterin, Mixed (H. K. Mulford Co.)

Pharmaceutical Preparations of Accepted Articles:

Novocain Tablets "D" each containing novocain 0.2 gram (3 grains).

Novocain Tablets "F" each containing novocain 0.05 gram ($\frac{3}{4}$ grain).

Novocain Suprarenin Tablets "A" each containing novocain 0.125 gram (2 grains) and suprarenin 0.000125 gram ($\frac{1}{500}$ grain).

Novocain Suprarenin Tablets "B" each containing novocain 0.1 gram ($\frac{1}{2}$ grain) and suprarenin 0.00025 gram ($\frac{1}{250}$ grain).

Novocain Suprarenin Tablets "C" each containing novocain 0.05 gram ($\frac{3}{4}$ grain) and suprarenin 0.000083 gram ($\frac{1}{1000}$ grain).

Novocain Suprarenin Tablets "E" each containing novocain 0.02 gram ($\frac{1}{3}$ grain) and suprarenin 0.00005 gram ($\frac{1}{1200}$ grain). (*Jour. A. M. A.*, May 4, 1912, p. 1356).

Academy of Medicine of Cleveland.

The ninety-third regular meeting of the Academy was held at the Cleveland Medical Library, Friday, June 21, the Vice President, F. W. Davis, in the chair.

J. L. Bubis presented the placenta of a case of hemorrhage from a normally situated placenta.

The program was as follows:

1, Hemorrhage from the Premature Separation of the Normally Situated Placenta, by J. L. Bubis (published in full on page 571).

A. J. Skeel, in opening the discussion, asked in regard to the use of the Momberg belt in the control of hemorrhages of the type described; unless the condition occurs early, while the uterus is small, the belt cannot well be applied. The indication for pubiotomy in the condition would seem to be a desire for rapid delivery in a moderately contracted pelvis. Vaginal Cæsarian section would be ideal if the cervix can be brought down. During the past two or three years the speaker has seen six cases of the type of hemorrhage described. In two the hemorrhage was very early and slight, and the diagnosis of the nature of the condition was not made until after delivery. In two other cases, occurring later in pregnancy, the hemorrhage seemed to be due to the use of bougies for the induction of labor; in both of these the child was born alive. In the fifth case, five and one-half months pregnant, the hemorrhage was frank and occurred without warning during the night. In the sixth case, a very recent one, the hemorrhage due to the malposition of the child, was an unusually large one; the patient had already been prepared for delivery and the cervix was dilated, so that version and delivery were done immediately.

J. J. Thomas recalled four cases that he had seen, in none of which the hemorrhage was serious. In one case the condition seemed definitely to follow trauma. Contrary to the previous speaker, he did not feel that premature separation of the placenta could be produced by bougies, unless used in cases of eclampsia, in which there is apt to be premature separation.

J. L. Bubis, in closing the discussion, said that he had had no personal experience with the Momberg belt; in some of the literature references its use is recommended. Pubiotomy might be indicated if the child is living, the head low down and delivery must be rapidly done.

2, The Milk Supply of Cleveland, by C. W. Eddy, Chief Meat and Dairy Inspector of the Board of Health. The efforts of the City toward the obtaining of clean, wholesome milk consist of the inspection of the dairies that produce the milk and of the depots and dealers that handle the milk after it is received in the city, and of the chemical and bacteriological examination in the City Bacteriological Laboratory. The inspection work covers an area with a radius of 200 miles about Cleveland. Last year there were inspected 3259 dairies, 550 licensed milk dealers and 700 stores which sell bottled milk. The work was inaugurated in 1906 with one man; now the force, exclusive of those in the laboratory, consists of fourteen inspectors, seven in the country and seven in the city.

The problem of pure milk is such an extensive one that the entire field cannot be covered with the force available or reformed with the laws at present at hand. Each year some one feature is particularly investigated, largely with the view of bringing about reforms through education. Every dairy, no matter how small or obscure, must be as carefully inspected as the larger and better equipped ones. No milk is permitted to enter Cleveland from an uninspected source.

The presentation of the City's milk inspection work was illustrated by a large series of interesting lantern slides, which followed the various stages in the preparation of milk from the cow to the consumer. They

illustrated also the unhygienic conditions which existed at the beginning of inspection and the improvement of conditions that has been brought about by inspection.

C. E. Ford, Superintendent of Health, in opening the discussion, said that it was proper that most attention should be paid to the source of supply. Although the milk after its receipt in the city was also closely controlled, it is to be regretted that it cannot be followed into the home; much of the illness for which milk is blamed is due to the ignorance and carelessness manifested in the care of the milk after the latter is received by the consumer.

J. J. Thomas said that the milk inspection of Cleveland has been very highly complimented; it has been stated that Cleveland has the best milk supply of any large city. Good milk is largely a matter of education of the public; even many doctors display marked ignorance as to what is good milk. The use of milk bottles for purposes other than the containing of milk ought to be prevented; bottles used for other purposes undoubtedly find their way back to the milk dealers and are used again as containers for milk.

A. F. Furrer asked in regard to the proportion of cows supplying milk to Cleveland which have had the tuberculin test and as to the frequency with which the test is made.

W. H. Tuckerman believed that the human element in the milk business, the persons who handle the milk, should also be subject to regulation and asked whether any attempt is made to control the feeding of cattle which supply the local market.

J. H. Coolidge, of the Belle Vernon-Mapes Dairy Company, said that he had been struck by the lack of information upon the part of the public in regard to their milk supply; the laity has no realization of what constitutes good milk and it must receive its knowledge from the physician. Many of the conditions illustrated by the lantern slides undoubtedly exist, but perhaps the picture has been painted a little darker than it really is. He expressed himself as being in entire sympathy with the work of the Health Department. Municipal inspection and civil authority can do much more toward improving conditions than can the endeavors of the commercial distributors of milk. It is largely due to the campaign of education waged by the Inspection Department that such marked improvement has occurred in the milk supply of Cleveland.

R. K. Updegraff said that the results obtained are evidence of the education of the dairymen; twenty-five years ago it would not have been possible to accomplish so much. Through the work of the Inspection Department and of the Health Department education must be carried to the people.

C. W. Eddy, in closing the discussion, said that he had always felt that the education of the public in regard to the milk supply must come through the medical profession; the family physician can do more than any Health Department or its officials. Bottles which have been improperly used may be rendered useless by means of paint or silver nitrate solution. In regard to tuberculosis and tuberculin testing exact data are not at hand; he believed that fully 25 per cent of the cows supplying milk to the local market are tuberculous and that not over 1 per cent of the cows are privately tested. The better dealers and breeders, who are beginning to realize the value of their stock, all have their cattle tuberculin tested as a matter of routine. Control of the actual process of milking is difficult because not every dairy can be inspected just at milking time; the educational effect of inspection is doing away with wet milking. The feeding of milk cattle is not controlled in the local field because it is not a health problem; the feeding is uniformly good, brewery and distillery wastes not being used. It is true that the lantern slides showed conditions worse than those which exist today; but

they all did exist in the beginning of the inspection work and the fact that conditions are better today means that inspection has abolished some of the more revolting things that were shown. Only within the past year has there been a sufficient force properly to inspect conditions within the City, and here the improvement is not yet as great as it should be. The obtaining of a milk dealer's license is now more difficult than it formerly was, because more equipment and greater care in the handling of milk are required.

COUNCIL MEETING.

The Council met Wednesday, June 19, the Vice-President, F. W. Davis, in the chair.

The application of C. C. Patton for active membership was received and ordered published. The resignation of W. E. Benfield from associate membership was accepted.

Upon motion a special committee was appointed to meet with a committee from the Municipal Association to take up matters relating to the Coroner's office and to represent the Academy with powers to act. The Chair appointed O. T. Schultz, W. B. Laffer and A. S. Storey.

The Secretary was instructed to communicate with all members of the Academy whose names may hereafter appear in connection with newspaper articles, requesting a statement in explanation.

The Secretary was instructed to publish a roster of the Academy and to mail a copy to each member.

The Secretary was requested to call attention to an error in the stenographic report of the State Association meeting as published in the *Ohio State Medical Journal*, June 1912, p. 324, where the statement appears that Cuyahoga County is in arrears for two years. C. E. Ford explained that it was Geauga County which was in arrears.

American Proctologic Society.

Fourteenth Annual Meeting, held at Atlantic City, New Jersey, June 3 and 4, 1912.

Address of the President, John L. Jenks, of Memphis: Relationship and Duties of the Proctologist to the Profession. Much harm has been done by the profession in the establishment of drug habits among the American people for the relief of constipation. The proctologist is best equipped to study these cases, and arrive at the true etiology pointing to means of relief. Attention was called to the intra- and extra-rectal and anal and colonic infections, the role they play and the possible developments of vaccine therapy and antitoxins in combating them. The addition to the American Medical Association of a section on Gastro-Enterology and Proctology, or Procto-Enterology, was recommended. He advised closer confinement of the proctologists to this work, to the exclusion of general work, and believed this will receive from the profession greater respect for this specialty, and that fewer of this class of cases will be referred the general surgeon, or be accepted by him for treatment.

A Review of Proctologic Literature for 1911. By Samuel T. Earle, of Baltimore.

Postoperative Care of Rectal Cases. By Wm. M. Beach, of Pittsburgh. Success in the solution of proctologic problems is measured by the degree of perfection in the restoration of functional conditions involved; we must remove the disease, but it is quite as important that we vouchsafe to our patients perfect function. Postoperative developments that need our attention are: 1, The disturbance of the nervous system; 2, the disturbance of the vascular system; 3, digestive de-

rangement; 4, local conditions. If patients are given proper postoperative care, their dread of radical cures would quickly subside, and rectal surgeons would escape untoward sequelae they may be compelled to record.

Patulous Anus: Its Clinical Significance. By Alfred J. Zobel, of San Francisco. The condition of patulous anus results from an abnormal loss of tone in the sphincter muscles, which may be due to either a fault intrinsically within the muscle, or to some disturbance in its nerve supply. When purely muscular the cause may be a direct injury to the muscle; an infiltration by a malignant or a syphilitic growth; a participation in a general muscular weakness; or the presence of a foreign body in the rectum which prevents the muscle from completely contracting. When the nerve supply to the sphincters is at fault the causative lesion may be either central or peripheral. Complete fecal incontinence does not necessarily follow when the anus becomes patulous. The external sphincter, when but slightly affected, sometimes is assisted in performing its function by an extra effort of the will and through augmenting the muscle's action by strongly contracting the glutei muscles and bringing them together.

The Surgery of Colonic Constipation. By Louis J. Hirschman, of Detroit. 1, Most cases of chronic constipation are colonic in origin and many are obstructive in type. 2, Many cases of so-called chronic constipation are therefore really colonic obstipation. 3, Many cases of colonic obstipation suffer from chronic dilatation of the colon with or without ptosis. 4, Radiography is a most vital necessity in the diagnosis of all cases of chronic interference with bowel function. Its negative value may be greater than its positive. 5, A chronically, over-distended colon whether adherent or not, never again becomes a normally functioning bowel. 6, Intestinal adhesions usually tend to recur in increased intensity and adhesions only cause symptoms when put under stress or tension. 7, The prevention of tension in physiologic rest to the affected organ and colonic rest is obtained only by colectomy, colostomy, or exclusion. 8, Colectomy as advocated by Lane is an operation seldom advisable and has many obvious objections from the standpoint of patient and physician. It is too grave a procedure to be undertaken except in the most aggravated cases. 9, Strictures, neoplasms, and other obstructions should be removed by excision of the diseased tissue and lateral anastomosis of the bowel. 10, Exclusion by ileocolostomy is safe, easy to perform, and most satisfactory in the restoration of normal peristalsis and consequently normal health.

The Roentgenologic Method of Examining Cases of Constipation and Obstipation. By Arthur F. Holding, of New York. The normal position of the colon and the parts of the intestine that can ordinarily be visualized by means of bismuth ingesta and the X-Rays, are: (1) The first portion of the duodenum; (2) the jejunum; (3) the ileum; (4) all parts of the colon; in some cases the second and third portions of the duodenum and the appendix, can be visualized. The method does not cause gastrointestinal symptoms, such as nausea, vomiting, diarrhea, constipation, or general symptoms, other than are present when butter-milk alone is ingested; it is therefore logical to assume that the butter-milk-bismuth mixture does not irritate the mucous membrane and gives a true picture of the motor activities of the patient's intestines. An accurate outline of the lumen of the tract can be obtained, especially where there is any obstruction to the onward progress of the intestinal contents. The individual peristaltic waves can be accurately registered on a special photographic emulsion that is far more sensitive than the human retina and the progress of the peristaltic waves can thus be seen functioning under normal conditions, the patient and his abdominal contents not relaxed by a general anesthetic; the secretions and motility not disturbed by the presence of an irritating foreign body such as a

stomach tube; the conclusion not based on inference deduced from chemical reactions of juices obtained by abnormal and irritating measures. The organic outline obtained in X-ray plates is even more conclusive and reliable than the information obtained by the sense of touch whether that be applied over the intact abdominal wall or to the viscera laid bare by an exploratory incision. There is, however, danger of arriving at wrong conclusions in using the X-ray method, especially when the examination is based upon too few plates or is only an examination of a suspected part of the 30 odd feet of intestinal canal. The various lesions and conditions that have been successfully shown by the X-ray method are: atonic and spastic constipation; congenital anomalies of the tract such as nonrotation of the cecum and narrowing or insufficiency of the ileocecal valve; adhesions; kinks, with or without adhesions, (including Lane's); ulcers; tumors within the canal and tumors pressing upon the intestines from without.

Valvotomy. By George B. Evans, of Dayton, Ohio. Valvotomy is a factor in the relief of proctitis, of obstipation and constipation, of distinct and isolated ulceration of the distal side and adjacent to the valve, of bladder and prostatic symptoms reflexly. Valvotomy is a justifiable operation, as it not only relieves obstipation and constipation, but often causes reflex and neurasthenic symptoms to disappear; frequently ameliorates and even cures proctitis, and by virtue of the drainage it secures, lessens the tendency to toxemia from intestinal origin.

Multiple Adenomata of the Rectum. By E. H. Terrell, of Richmond, Virginia. Report of a case of multiple adenomata of the rectum and sigmoid, in a patient 42 years of age, who had been suffering for the past five years. He had frequent stools with mucus, some blood and a great deal of tenesmus. He was having from eight to ten stools daily. He suffered considerable pain throughout the abdomen. Examination showed numerous small tumors scattered through the rectum and sigmoid. Microscopic examination showed these growths to be adenomata. The bowel was intensely inflamed and contained many ulcers. Under irrigation of the bowel with boric acid and the administration by mouth of castor oil and aromatic syrup of rhubarb, improvement was almost immediate. The tumors were reduced in size and the ulcers gradually disappeared. While the adenomata are still present the patient is symptomatically cured.

Pigmentation of the Rectum and Sigmoid. By Jerome M. Lynch, of New York. The conclusions, based on the study of six cases, were as follows:

That hemochromatosis is of bacterial origin; that the extent of the disease is dependent upon the severity of the infection; that the probable source of infection is the intestinal tract, possibly starting as an intestinal putrefaction; that this intestinal putrefaction lowers the vitality of the tissue, and thereby the cells of the mucous membrane lose their protective properties, consequently bacteria find ready access to the portal circulation. As a result of this the chromogenic function of the liver is interfered with, consequently the liver becomes surfeited with pigment, and is not capable of abstracting the iron from the hemoglobin, with the result that an excessive amount of pigment is circulating in the blood. That the cells of the intestine probably have a selective action for these pigments, and as a consequence they are deposited in the tissue. That local hemochromatosis may be due to repeated local hemorrhages, followed by infection, and that as a result of this infection the bacteria cause a hemolysis of the blood, forming pigment which resembles hemosiderin, hemotoiden and hemofucin. That these pigments may, or may not, give a reaction for iron.

Observations upon the Relationship of Tuberculosis to Perirectal Suppurations. By Collier F. Martin, of Philadelphia. The author has found pulmonary tuberculosis so frequently associated with his cases of peri-

rectal suppuration that he determined to report a consecutive series of cases, with findings. The report comprises 376 consecutive cases, 75 per cent being males, and ranging in age from 7 months to 87 years. The majority of these cases (322) occurred in the most active period of life, from 20 to 60 years. He divided his cases into four major groups; the actively tuberculous (144 cases), the chronically tuberculous (68 cases), the phthisenoid (20 cases), and those patients in apparently good health (55 cases). This would indicate that at least 212 cases or 61 per cent were cases of known tuberculosis. There were 309 operations performed on 306 patients, under various anesthetics. Following these cases for the past four years he has traced 37 deaths, of which 34 died of active tuberculosis or its complications. The abscesses or fistulae in most of these cases could not be classified, from their appearance, as being locally tuberculous. Where the tubercle bacillus was easily recovered from the tissues or discharges, there was usually a very active pulmonary infection present. The writer believes that the usual explanation of the association of pulmonary tuberculosis with rectal suppurations lies in the fact that any pulmonary lesion, however small or inactive, may so alter the patient's vital processes and so lower the opsonic index, as to make him particularly susceptible to pyogenic invasion. The same may be said of pyogenic infections in general, but the peculiar anatomic conditions existing in the rectum and its very active physiologic function, makes this a fertile region for external and internal trauma with subsequent inflammation and infection. Traumatism is considered to be the chief active factor in impairing the integrity of the tissues. The writer emphasized the fact that a careful lung examination should be made in all cases of perirectal suppuration. He also made a strong plea for a careful and extended supervision of the patient's general health for a long period after all surgical treatment had been discontinued. The vital consideration in these cases is not the question as to whether or not the local lesion is tuberculous, but has to do with the presence or absence of active or latent tuberculosis in the patient, and his chances of having good general health after surgical intervention.

Anorectal Disease Due to Venereal Infection. By James A. McVeigh, of Detroit. The regional relationship of the genital organs to the anus and rectum renders the latter especially prone to this kind of infection. Venereal disease of the anus and rectum may be either direct, through practice of vicious habits, or indirect, or accidental, through extension of infection to these parts from other sources.

Further Observations on Pruritus Ani: Its Probable Etiologic Factor. By Dwight H. Murray, of Syracuse. From his experiences, since discovering that a skin infection is the important factor in pruritus ani, he believes that we are now in a position to state that there may be two varieties of pruritus ani; one that may be coincident with some of the diseases of the rectum and in which the skin infection is not present. He designates this form as Pruritus Ani Simplex; the variety which is chronic in its character and in which the skin infection is present, he designates as Coccigenous Pruritus Ani. 32 of 94 pruritus cases have been examined bacteriologically and all of them showed streptococcic skin infection as the predominating condition. He believes that the excess moisture and the infiltrated condition of the skin in these cases is due to the low grade inflammation caused by skin infection and is not the result of moisture coming from the inside of the anal canal.

Colonic Dilatation as a Factor in Chronic Intestinal Obstruction (Obstipation). By Samuel G. Gant, of New York. The author stated that his experience warrants the belief that both acquired and congenital (Hirschsprung's) dilatation of the colon is fairly common, and that they respond satisfactorily to treatment (usually surgical). He said that noncongenital dilatation of the bowel might result from paresis, gormandizing, digestive disturbances or chronic intestinal obstruction however caused, and when present, leads to constipation, fecal impaction,

distension of the bowel, angulation, twisting and ptosis of the colon. He called attention to the fact that this class of patients suffered much less from intestinal autointoxication than persons afflicted with acute constipation. Although temporary improvement occasionally follows medication and physical measures, a cure is not possible except through one of the following surgical measures: coloplication, colopexy, resection, intestinal exclusion, colostomy.

Acute Postoperative Intestinal Paresis. By J. A. MacMillan, of Detroit. A paralysis of a portion of the intestine which suddenly dilates and becomes the receptacle for gas and fecal material, may be due to sepsis, trauma, etc. The lesion is probably in the sympathetic nervous system. The treatment consists of gastric lavage, enemata, and enterostomy.

Prophylaxis and Treatment of Postoperative Retention of Urine. By Frank C. Yeomans, of New York. Ascertain and correct, if possible, lesions of the urethra and bladder in advance of operation. Prophylaxis: Urinary antiseptics and posture. Treatment: Suggestion, local applications, medicine, standing, aseptic catheterization.

Intrarectal Rupture of Suppurating Sinus from Hip-joint Disease. By Ralph W. Jackson, of Fall River, Massachusetts. Intra-anal or-rectal rupture of a coxitic sinus occurs rarely but not with extreme infrequency. Such opening involves probably considerable mixed infection of the joint beyond what would occur if the opening were external and tuberculous infection of the rectum might arise. Intraanal opening is quite easily treated and much of the mutual risk of infection removed. Intra-rectal opening is in most cases too high to turn aside in any way and operating for such purpose is likely to create at once a complete rectal fistula where none existed before.

Preliminary Report of Two Cases. Alois B. Graham, of Indianapolis, presented a brief preliminary report of a case of keloidal tuberculoma and one of fibromatous keloid.

Some Practical Points Gleaned from the Observations of a Proctologist. By Samuel T. Earle, of Baltimore. Report of a case of primary tuberculous ulceration of the right buttock, which was not connected with the rectum by a fistulous tract. Also a very aggravated case of pruritus ani associated with an ulcer over the posterior commissure just above the internal sphincter, which connected on each side with numerous submucous and subcutaneous superficial fistulae which enveloped the entire anal margin and connected with each crypt of Morgagni.

Subnormal Colonic Function as a Diathesis. By J. Coles Brick, of Philadelphia. The writer was led to investigate the causes of a persistent case of constipation, which had existed since childhood, and which was of an average duration of 7 days, in a young woman of 18 who was in seemingly good health, but whose father had had the same condition and who had subsequently developed a case of chronic arthritis deformans. At operation no abnormality was found except an old and thickened appendix. Examination of the X-ray plates showed a bilateral calcification of the costal cartilages, which the writer thought was an early symptom of arthritis deformans, and he accepts the theory that this disease is a toxic trophoneurosis affecting the cerebrospinal nerves, with its infectious focus in the gastrointestinal canal.

The Three-Step-Operation in Tumors of the Sigmoid and Colon. By James P. Tuttle, of New York. Incision is made in the outer border of the left rectus. Tumor is brought out on the abdominal wall. Peritoneal layers of the meso-sigmoid are incised well above and below the tumor, and stripped back so as to expose the blood-vessels, fat, and glands, which may be in the meso-sigmoid; the latter are stripped toward the intestine until the blood-vessels are bare and the supply to the bowel is easily visible. The sigmoidal artery is tied in two places and cut between and the proximal stump dropped back into the abdominal cavity. The raw surface in the abdomen is covered over by suturing the two

peritoneal layers of the meso-sigmoid together over the arterial stump. The two legs of the sigmoid are sewed together laterally to make a spur, after the method of Bodine. The peritoneum is sewed around the bowel; the muscles drawn together; the skin wound closed, attaching it to the bowel. In forty-eight hours the tumor is excised by a V-shaped incision. Two days later, the spur is cut away by pressure-forceps. After this is completed a long rectal bougie is passed up through the bowel beyond the artificial anus, in order to press the spur back and obtain a large caliber at the site of the resection. When the wound made by the pressure-forceps is healed, the artificial anus is closed by the extra-peritoneal method of the author.

The X-Rays as an Aid in Making Diagnoses of Conditions in the Rectum and Other Portions of the Large Intestine. By J. R. Pennington, of Chicago. The patient's bowels are first cleansed by means of laxatives and injections. He is then placed in the knee-shoulder position, and from 25 to 30 ounces of the mixture used for casting the shadow injected into the large intestine. For this purpose the author uses an ordinary irrigator and a short rectal tip. A long rectal or colonic tube for administering the injection is unnecessary. After the suspension is injected the patient lies on his right side for a few moments so part of the menstrum may pass into the cecum. He is then placed in either dorsal or ventral position on the radiographic table and the picture taken.

Officers elected for the insuing year: President, Louis J. Hirschman, Detroit; Vice President, Alois B. Graham, Indianapolis; Secretary-Treasurer, Lewis H. Adler, Jr., Philadelphia. Executive Council: John L. Jelks, Memphis; Louis J. Hirschman, Detroit; J. Rawson Pennington, Chicago; Lewis H. Adler, Jr., Philadelphia. The place of meeting for 1913 will be at Minneapolis. The following were elected Associate Fellows of the Society: Rollin H. Barnes, St. Louis; Barney J. Dryfuss, New York City; James A. Duncan, Toledo.

Book Reviews.

A Handbook of Practical Treatment. In three volumes. By 82 eminent specialists. Edited by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania; and A. O. J. Kelly, M. D., Late Assistant Professor of Medicine, University of Pennsylvania. Volume III: Octavo of 1095 Pages, illustrated. Philadelphia and London; W. B. Saunders Company, 1912. Per volume: Cloth, \$6.00 net; Half morocco, \$7.50 net.

The third volume of this series deals with Constitutional Diseases and Diseases of the Respiratory, Digestive, Urinary, Nervous and Muscular Systems. The various conditions are considered from the standpoint of etiology and diagnosis by way of introduction to treatment. Where applicable, surgical treatment is presented in a separate chapter by an authoritative writer on the subject—a combination which renders the work more useful for reference. For example, the medical treatment of Arthritis Deformans is taken up by Thomas B. Fletcher and in the following chapter the surgical, nonoperative as well as operative, by Joel E. Goldthwait. Similarly in the border line medical and surgical conditions such as gastric ulcer the same division is observed, with rather less than the usual discrepancy of opinion. In a few particulars the work seems somewhat behind the times compared to current literature. For example, the connection of *Spirochaeta pallida* to Syphilis is not considered established. In the treatment of cerebral hemorrhage the old methods of depletion by catharsis, etc., are recommended in principle. No mention is made of Cushing's work of the compensatory character of the increased blood pressure and the indication for decompression. Nervous diseases are well presented. In the treatment, however, whether

for the sake of comprehensiveness or otherwise, electricity is advised in various conditions, rather in contrast to the usual attitude of incredulity toward electrotherapy. The language is accurate and the subjects are unusually clearly presented, making the book very readable as well as valuable for reference.

V. C. R.

Laboratory Methods, with Special Reference to the Needs of the General Practitioner. By B. G. R. Williams, M. D., Assisted by E. G. C. Williams, M. D. With an Introduction by Victor C. Vaughan, M. D., LL. D., Professor of Hygiene and Physiological Chemistry and Dean of the Department of Medicine and Surgery, University of Michigan. Cloth, 204 pages, 43 illustrations, \$2.00. C. V. Mosby Company, St. Louis, 1912.

In these days of costly and complicated laboratory equipment, with which the student becomes somewhat acquainted during his course in the medical school, the doctor is apt to feel lost and hopeless when he goes out into practice for himself. He knows that there are many little helpful laboratory procedures that he could use if he only had the machinery. This book is unique in that it shows him how little expensive apparatus is necessary for the performance of laboratory diagnostic measures and in that the directions for the actual performance of these measures with a minimal amount of equipment are shorn of confusing detail. Fat tomes there are in great sufficiency, which describe all sorts of tests and all their possible modifications. They have their place in the well equipped laboratory and upon the doctor's shelves as books of reference, but as working guides in the simple sort of laboratory which every doctor can equip for himself they are confusing. The little volume under consideration tells him succinctly just what he needs for essential work, just how to go about doing such work of a microscopical, bacteriological, pathological, chemical and serological nature and just what he cannot expect to do. There is no reason why the physician should not carry much of the scientific knowledge gained during his student days out into active practice. For the young practitioner who has had the advantages of a good modern training and who knows the value of accurate diagnosis, and for the older one that has not had such a fortunate training and who realizes his shortcomings, Williams' "Laboratory Methods" will prove invaluable. The book deserves a sale which ought soon make necessary a second edition; in the revision we would recommend that the ending of the plural of "treponema" be changed from "ae" to "ata".

O. T. S.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burghard, M. S., (Lond.), F. R. C. S., Surgeon to King's College Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green, London. New (2d) edition. Thoroughly revised and largely rewritten. In five volumes containing about 3,000 pages and illustrated with about 900 engravings. Price, cloth, \$6.00, *net*, per volume. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

Volume second of this work takes up the treatment of surgical affections of the skin and subcutaneous tissues, the nails, the lymphatic glands and vessels, the muscles, the tendons and tendon-sheaths, the nerves, the veins, the arteries and the bones. Special stress is laid by the authors on detailed information necessary for treatment, both operative and after care. They assume that the reader is familiar with the nature and diagnosis of the disease and refer to pathology and symptoms only in so far as it is necessary to render intelligible the principles on which the treatment is based. The different subjects are clearly and concisely hand-

led and the text is well illustrated. No claim is made for anything like an exhaustive summary of the various methods of treatment, but those plans are described which in the experience of the authors have proved best. This work should prove an excellent one for the student and general practitioner. R. H. B.

Tumors of the Jaws. By Charles L. Scudder, M.D., Surgeon to the Massachusetts General Hospital. Octavo of 391 pages, with 353 illustrations, 6 in colors. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$6.00 net; half morocco, \$7.50 net.

In any discussion of a surgical topic by Doctor Scudder one expects careful valuation of clinical data and close study of the pathological findings and, further, such correlation of these two with the future histories of cases that the conclusions reached are of value to him who must make a diagnosis and determine upon an operative procedure in similar cases. In this volume, based largely upon the material of the Massachusetts General Hospital, histories of selected cases are given in detail, the pathology of the various forms of tumors which may occur in the jaws is described and is illustrated with photomicrographs, the differential diagnosis of each type of tumor is discussed and the later results of the operative procedures are tabulated. The nine chapters cover the following subjects: epulis; sarcoma of the jaws; benign tumors of the jaws; odontomata; carcinoma of the jaws; the diagnosis and operative treatment of malignant diseases of the upper and lower jaws; tumors of the palate; leontiasis ossea; prosthesis. The book covers a field not elsewhere readily available. More detailed discussion of the tumors of the parotid, sufficient to aid in the clinical differentiation of these from the tumors of the jaw proper, would be helpful to the reader.

In his preface the author refers to the book as a monograph. The authoritative and detailed exposition of restricted medical fields in the form of monographs is a valuable kind of medical literature nowhere so well developed as in Germany. Doctor Scudder's book would compare more favorably with German monographs if a smaller size of type had been used for the case histories, thus separating the latter from the running text, increasing the ease of reference to the latter, and making for a smaller number of pages. For the price at which the volume is sold one expects rather more than is offered, the cost in the present instance no doubt being due to the size which the unfortunate typographical arrangement entailed and to the illustrations. Concerning the inclusion of some of the latter there may well be some question of taste; those which show the facial reconstruction possible after operation are valuable, but the copied pictures, which show the horrible facial deformity that tumors of the jaws were permitted to produce before the modern days of early diagnosis and operation, might well be omitted, just as pictures of the mutilating *cancer en cuirasse* are no longer reproduced in modern text-books of surgery. O. T. S.

Acknowledgements.

Essays on Genitourinary Subjects. By J. Bayard Clark, M. D., Assistant Genitourinary Surgeon to Bellevue Hospital, Consulting Genitourinary Surgeon to the Elizabeth General Hospital. Cloth 174 pages, \$1.25 net. William Wood & Company, New York, 1912.

Gould and Pyle's Cyclopedic of Practical Medicine and Surgery, with Particular Reference to Diagnosis and Treatment. Second Edition, Revised and enlarged. By R. J. E. Scott, M. A., B. C. L., M. D., New York. Cloth, Two volumes, with 653 figures, \$14.00 net. P. Blakiston's Son & Company, Philadelphia, 1912.

Bulletin de l'Association Francaise Pour l'Etude du Cancer, tome V. No. 4.

The University of Chicago, Rush Medical College, 17th Annual Announcement.

Bulletin of Tulane University, Medical Department, Announcement for 1912-1913.

Electic Medical College of Cincinnati Bulletin, 68th Annual Announcement.

Senate Report No. 763: Duties on Sugar.

Reprint from Public Health Reports, No. 77: Sewage-Polluted Water Supplies in Relation to Infant Mortality. By Allan J. McLaughlin.

Reprint from Public Health Reports, No. 79: Investigations of and Tick Eradication in Rocky Mountain Spotted Fever. By Thomas B. McClintic.

Reprint from Public Health Reports, No. 80: Examination of Excreta for Typhoid Bacilli. By L. L. Lumsden and A. M. Stimson.

Reprint from Public Health Reports, No. 81: Sanitary Advice for Summer Tourists and Sanitary Advice for Keepers of Summer Resorts. By W. C. Rucker.

Reprints from Public Health Reports, No. 82: Studies on the Virus of Typhus. By Joseph Goldberger and John F. Anderson.

Reprint from Public Health Reports, No. 78: Report of the Commission on Milk Standards Appointed by the New York Milk Committee.

Senate Document No. 493: Memorial Relating to the Conservation of Human Life as Contemplated by Bill (S. 1) Providing for a United States Public-Health Service. Prepared by Prof. Irving Fisher of Yale University, President of the Committee of One Hundred on National Health, Assisted by Miss Emily F. Robbins of New York City, Executive Secretary of the Committee.

Hygienic Laboratory, Bulletin No. 83: Sewage Pollution of Interstate and International Waters, with Special Reference to the Spread of Typhoid Fever. By Allan J. McLaughlin.

Hygienic Laboratory, Bulletin No. 84: Digest of Comments on the Pharmacopoeia of the United State of America (Eighth Decennial Revision) and on the National Formulary (Third Edition) for the Calendar Year Ending December 31, 1910. By Murray Galt Motter and Martin I. Wilbert.

Pellagra: History, Distribution, Diagnosis, Prognosis, Treatment, Etiology. By Stewart E. Roberts, S. M., M. D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons, Atlanta, Georgia; Physician to the Wesley Memorial Hospital; Formerly Professor of Biology in Emory College. Cloth, 272 pages, 89 figures and a colored frontispiece, \$2.50. C. V. Mosby Company, St. Louis, 1912.

Reprint from Public Health Reports, No. 83: Resolutions Adopted by the Tenth Annual Conference of State and Territorial Health Authorities with the Public Health and Marine-Hospital Service, Washington, June 1, 1912.

Reprint from Public Health Reports, No. 84: Leprosy in the United States.

Reprint from Public Health Reports, No. 85: Methods and Standards for the Production and Distribution of "Certified Milk," Adopted by the American Association of Medical Milk Commissions May 1, 1912.

Public Health Bulletin, No. 53: Studies of Plague. By George W. McCoy and Charles W. Chapin.

State Board Examinations.

Held at Columbus, June 18-21, 1912.

CHEMISTRY.

1. What are ferments? Name and explain the action of the salivary, gastric and pancreatic ferments.
2. Name two neurotic poisons. Give antidote of each.
3. Name and give antidote of three poisons most frequently used for suicidal purposes.
4. Define atomic weight, molecular weight, acid, base, and radical.
5. Name the principal acids and give source of each.
Name the principal alkalies and give source of each.
Name four of the principal bases and give source of each.
6. Write the chemical reaction that occurs when bicarbonate of sodium is given for hyperacidity of the gastric juice.
7. How would you distinguish chemically between uric acid and urea?
8. What is catalysis? What is its value in chemistry?
9. Define or explain the term hardness as applied to a potable water. What makes water hard? Give a test for chlorids in water.
10. What are the principal constituents of cow's milk? Give chemical explanation of the souring and curdling of milk.

ANATOMY.

1. What are the two kinds of bone tissue and where is each one found?
2. What tends to prevent anterior displacement at the elbow joint?
3. What muscles connect the scapula with the trunk?
4. Describe and locate each of the valves of the heart.
5. Name the visceral branches of the abdominal aorta.

PHYSIOLOGY.

1. Name four conditions that influence the composition of the blood in health. Describe such influence.
2. State what you know about the distribution and structure of the capillaries.
3. What purpose is served by the arrangement of valves in veins, and where are they most generously placed?
4. What is the object of respiration? Define complemental, reserve and residual air.
5. What is the condition of the vascular system in asphyxiation?
6. State what you know of the office of the thyroid gland and of the effects on the body of its complete removal.
7. Describe the mechanism of vomiting, and what general muscles are involved in the act.
8. What structures of the kidney are chiefly concerned in filtration? What effect does increased blood pressure have on the process?
9. What are the principal morbid effects of division of the fifth nerve?
10. To what property does muscle owe its activity? Name four conditions which effect the irritability of muscles, and state how.

PATHOLOGY.

1. Give in detail the vascular changes in a simple inflammation.
2. What is metastasis? Name three pathological conditions in which it occurs.
3. Describe a typical lesion produced by the tubercle bacillus.

4. Describe minutely the process of healing in an infected wound of the skin.
5. What is a thrombus? What are its possible terminations?
6. What local defensive measures does the organism use to limit an appendiceal inflammation?
7. Is there any importance to phagocytosis? Why?
8. How would you make a Widal test?
9. Upon what principal does vaccination against typhoid depend? How is the vaccine prepared?
10. Describe the exudate in a pneumonic lung in the stage of red hepatisation.

PRACTICE.

1. Differentiate between infectious and contagious diseases.
2. Give the etiology, symptoms and clinical findings of bronchial asthma.
3. Give the cause of hematuria. How may the source of the blood be inferred?
4. Differentiate between rheumatic fever and pyemia with suppuration. Arthritis and gonorrheal arthritis.
5. Describe procedure in making a physical examination of the abdomen.
6. Give causation, symptoms and treatment of acute cholecystitis.
7. Differentiate coma of cerebral hemorrhage from that of diabetes mellitus. Give treatment for the latter.
8. Give etiology and symptomatology of empyema.
9. Diagnose gastric ulcer.
10. Define and give symptoms, diagnosis and treatment of acute articular rheumatism.

DIAGNOSIS.

1. What indications may be derived from an increased dullness of the cardiac area toward the left and downward?
2. Define rales, mention their typical types and their pathological significance.
3. Where do you find the normal apex beat and what indications do you derive from its displacement?
4. In what pathological conditions do you find Cheyne-Stokes breathing?
5. What indication is given by a decreased resonance, dullness in the left axillary line?
6. What diagnostic significance do you derive from an increased resonance on one side of the chest?
7. To what pathological conditions is a general distension of the abdomen due?
8. State how you determine the shape and size of the liver by percussion.
9. What pathological significance is given to the absence of the plantar reflex—Babinski phenomenon?
10. In what pathological affliction do you find facial paralysis?

MATERIA MEDICA AND THERAPEUTICS (REGULAR).

1. What drugs would you use in acute articular rheumatism? Write a prescription for each.
2. Name four drugs, giving dose of each, that are used hypodermically. What precautions should be observed in administering them?

3. Mention indications for the use of Arsenic. In what forms is it used? Give dose of each.
4. Explain the action and use of diuretics.
5. Name the preparations and alkaloids of Opium. What are the chief indications for their use? State the dose of each.
6. Name the preparations of *Veratrum Viride*, giving dose of each. Give treatment for overdose.
7. Name three cerebral sedatives. Give dose and use of each.
8. Describe the physiological action and state the therapeutic use of *Digitalis*.
9. Name two drugs used in the treatment of intermittent fever. Give dose of each and describe the action of each.
10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

MATERIA MEDICA AND THERAPEUTICS (ELECTIC).

1. Give specific use of *Veratrum Viride*.
2. For what is Benzoic Acid principally used? How does it act?
3. Differentiate between *Colocynthis*, *Dioscorea*, *Nux Vomica* and *Magnesium Sulphate* in their use in abdominal pain.
4. What is the common name of *Piper Methysticum*? For what is it used and what is its effect?
5. Discuss the therapeutic uses of *Collinsonia*.
6. Give antidotes to Arsenic, Carbolic Acid, Oxalic Acid, *Belladonna* and *Strychnia*.
7. Discourse briefly on *Podophyllum*.
8. What are the physiological effects of *Gelsemium*?
9. From what is *Thuja Occidentalis* obtained? Give use.
10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC).

1. Give the leading indications for *Calcarea Iodide*.
2. Differentiate *Ipecac* and *Tartar Emetic*.
3. Differentiate *Stannum* and *Phosphorus*.
4. How much *Morphin* would you give a child under two years of age, hypodermically? Why?
5. What are the physiological effects of *Gelsemium*?
6. Give the leading indications for *Cantharis*. *Crotalus*.
7. Name three remedies having a specific influence on the action of the heart? Give the indications for the first named.
8. Name three remedies having specific action on the kidneys. Three on the liver.
9. Name three remedies having a specific action on the lungs, on the female genital organs. Give indication for *Sepia*.
10. Is electricity indicated in acute tubercular synovitis? If so, what form would you use?

SURGERY.

1. Diagnose pleuritic effusion, purulent and nonpurulent.
2. Name causes for chronic inflammation of bone. Do they always pass through an acute stage? Are they ever amenable to medical treatment? Give the most common symptom.

3. Give supplementary and surgical treatment for tubercular knee joint disease in children.
4. What are the most common complications following amputation? How met?
5. Define coxalgia and give treatment.

OBSTETRICS.

1. What symptoms would cause you to suspect ectopic pregnancy?
2. Give diagnosis and management of placenta praevia.
3. Give cause, symptoms and treatment of the various forms of dysmenorrhea.
4. What are the dangers of vaginal examinations during labor and what can be learned by them?
5. Outline your attentions to a new born child up to the time it is turned over to the nurse.

DERMATOLOGY, SYPHILOLOGY AND DISEASES OF THE EYE, EAR, NOSE AND THROAT.

1. Describe seborrhea capillitii (of the scalp) and differentiate it from psoriasis.
2. How do you recognize scabies and how treat it?
3. Describe leg ulcers and give treatment.
4. What is the initial lesion of syphilis?
5. Describe syphilitic roseola and state how it is recognized.
6. Define astigmatism. Give its causes, symptoms and state how to improve the vision with lenses.
7. Describe dacryocystitis, mention its causes and outline treatment.
8. Describe otitis media purulenta and the dangers which may result.
9. Describe catarrhal laryngitis.
10. How do you recognize nasal polypi? Give causes and treatment.

Correspondence.

Cleveland, July 15, 1912.

The Editor:—

In your Journal, June issue, page 463, I notice an unfair remark, involving my name, regarding unethical advertising.

Enclosed please find my communication to the Secretary of the Academy of Medicine, which I please ask you to publish in your next issue.

Respectfully,
M. Loewenthal, M. D.

The Secretary of the Academy of Medicine:—

I notice in *The Cleveland Medical Journal* an unfair accusation regarding the advertising of my name in *The Press*. As I am not aware of the fact that I ever personally advertised in *The Press*, I find this procedure of the Council very unethical towards a member of your society. As this action is also involving my dignity and honor as a reputable physician, I herewith ask you to give me an explanation for your action.

Respectfully,
M. Loewenthal, M. D.

In accordance with Doctor Loewenthal's request THE JOURNAL gives space to his letter to the Secretary of the Academy of Medicine of Cleveland. Any extended comment upon our part is unnecessary, since reference to page 463 of the June issue will show that what is considered an "unfair accusation" appeared in the copy of the minutes of a meeting of the Council of the Academy of Medicine. Such controversy as there may be is between Dr. Loewenthal and the Academy of Medicine; not between him and THE JOURNAL.

Medical News.

National Society of Anesthetists: On June 6, at Atlantic City, during the meeting of the American Medical Association and following a symposium on anesthesia, the National Society of Anesthetists was organized. Professor Yandel Henderson of Yale, Chairman of the Commission on Anesthesia of the American Medical Association, occupying the chair, those assembled for the symposium, acting as a committee of the whole, proceeded to organization and elected the following officers for the year 1912-13: President, James T. Gwathmey of New York; Vice Presidents, Charles K. Teter of Cleveland, F. H. McMeechen of Cincinnati, and Yandel Henderson of New Haven; Secretary, William C. Woolsey, 88 Lafayette Avenue, Brooklyn; Treasurer, Harold A. Sanders of Brooklyn. The constitution and by-laws were ordered to be drawn by the executive committee and submitted to the Society at its next meeting for adoption; all names submitted for membership, if qualified in the estimation of the executive committee, shall be considered as charter members if presented within a period of sixty days and accompanied by the levied due of three dollars. All those who are actively interested are invited to join the Society and assist in developing the subject of anesthesia to greater perfection and more uniform safety.

The Third Annual Session of the Clinical Congress of Surgeons of North America will be held in New York, November 11 to 16. There is no fee for enrollment and a cordial invitation has been extended to visitors interested in surgery. At the last session, held in Chicago, over fifteen hundred were in attendance. In addition to the clinics and laboratory demonstrations, papers are to be presented by eminent American and foreign surgeons. Some of the latter, whose names appear on the preliminary program, are Otfried Foerster of Breslau, Ernst Wertheim of Vienna, and W. Arbuthnot Lane of London.

Sanitation in Ecuador: It is reported that Ecuador has requested of the United States the aid of Colonel Gorgas in the sanitation of Guayaquil, "the pest-hole of the Pacific," where yellow fever, small-pox and plague are endemic.

The Trustees of the American Medicine Gold Medal Award have conferred the medal for 1912 upon William C. Gorgas, Colonel, Medical Corps, U. S. Army, "as the American physician who has performed the most conspicuous and noteworthy service in the domain of medicine during the past year."

Bubonic plague, which has been present for some weeks in Porto Rico, has made its appearance at Havana, Cuba. The State Board of Health of Louisiana has advised the killing of rats in gulf cities.

Endorsement of the Owen Bill by Homeopaths: At a joint conference held in Pittsburgh, June 18, between a committee representing the American Medical Association and a committee from the Amer-

ican Institute of Homeopathy, holding its sixty-eighth annual convention in that city, it was virtually agreed that both would favor a national department of health. The Association was represented by W. C. Woodward, of Washington, D. C., and Samuel G. Dixon, of the Pennsylvania Department of Health. The institute committee was composed of George Royal, Des Moines, Iowa; J. H. McClelland, Pittsburgh; J. P. Sutherland, Boston; R. S. Copeland, New York, and J. B. Gregg Custis, Washington, D. C. The Dayton Homeopathic Medical Society, at its recent meeting, endorsed the Owen bill and asked the American Institute of Homeopathy to support this measure. Many California homeopathic physicians are urging Senator Works, the most active opponent of the bill, and his colleague from California, Senator Perkins, to support the measure.

Unite to Teach Sex Hygiene: The American Federation of Sex Hygiene was incorporated with the Secretary of State of New York, on July 1, to operate throughout the country. Its purpose is the voluntary education of the public in the physiology and hygiene of sex, including the study and application of every means, educational, sanitary, moral and legislative, for the prevention of vice and its diseases. The principal office of the corporation will be located in New York City.

Honorary Degrees: Harvard University has conferred the honorary degree of Master of Arts upon Surgeon-General Charles Francis Stokes, U. S. Navy, and that of Doctor of Science upon Frederick Forchheimer of Cincinnati and Frederic Cheever Shattuck of Boston. On June 19, Wesleyan University of Connecticut conferred the degree of Doctor of Laws upon Amos J. Givens, proprietor of the Givens Sanitarium for nervous diseases at Stamford, Connecticut. The University of Michigan, at its recent commencement, conferred the degree of Doctor of Science upon John J. Abel and that of Doctor of Laws upon William H. Howell, both of Johns Hopkins University. The latter university, on June 11, conferred the degree of Doctor of Laws on William C. Gorgas, Colonel, Medical Corps, U. S. Army.

William Pepper has been appointed Dean of the Medical Department of the University of Pennsylvania.

Howard S. Anders has resigned as Assistant Professor of Physical Diagnosis in the Medico-Chirurgical College of Philadelphia.

Charles A. Powers of Denver has been elected President of the American Surgical Association.

John F. Winn of Richmond, Virginia, for many years the Professor of Clinical Obstetrics in the University College of Medicine, has been made Professor of Obstetrics.

Damages for Libel: A verdict for \$10,000 damages for libel, in favor of Robert Bell, has been awarded in London against the *British Medical Journal* and E. F. Bashford, Director of the Imperial Cancer Research Fund Laboratories, for an article entitled "Cancer, Credulity and Quackery," which attacked the theory of Doctor Bell that cancer is a disease of the blood due to impurities resulting from cooked food.

The Ohio Pharmaceutical Association, at its annual meeting held at Cedar Point during the week of July 8, passed a resolution urging the appointment of James H. Beal of Columbus, General Secretary of the American Pharmaceutical Association and editor of the journal of the Association, as Chief of the Bureau of Chemistry, the post vacated by the resignation of Harvey W. Wiley.

Erie County Medical Society: At the meeting held at Sandusky, May 29, R. E. Skeel of Cleveland gave an address upon Anesthetics. The discussion was opened by W. E. Gernhard of Cleveland.

Muskingum County Medical Society: At the last meeting of the year, held at Zanesville, Thursday, June 13, the Society was addressed by Henry C. Fisher, Lieutenant Colonel, Medical Corps, U. S. Army, on Antityphoid Vaccination.

Committee on Arrangements for the Ohio State Medical Association Meeting: The following Youngstown physicians have been placed in charge of the arrangements for the meeting of the Association to be held in Youngstown in May, 1913: R. D. Gibson, W. H. Buechner, Silas Schiller, Sidney McCurdy and W. deWeese Coy.

The Ohio State Medical Teachers' Association has elected the following officer: President, W. E. Mosely, Toledo; Secretary, Roy G. Hoskins, Columbus.

Steubenville citizens are engaged in an active campaign to raise \$100,000 for a new city hospital.

W. A. Melick of Zanesville is making a four months visit to European clinics.

B. L. Millikin, Professor of Ophthalmology in Western Reserve University since 1893 and Dean of the Medical Faculty since 1900, has resigned both positions and will hereafter devote himself to private practice and consultation work in ophthalmology.

George C. Ashmun, Professor of Hygiene and Preventive Medicine in Western Reserve University from 1893 to 1909, Professor of Medical Ethics since that time, and Secretary of the Medical Faculty from 1893 to 1907, has resigned and has been made senior professor.

The Consumers' League of Cleveland has published a list of bakeries approved as being sanitary.

Warrants for Alleged Illegal Practice: As the result of the activity of the Ohio State Medical Board in Cleveland four women have been arrested for practicing midwifery without a license, a fifth woman for failing to report a case of diseased eyes, and two men for practicing medicine without a license.

Increased Appropriation for Work in Child Hygiene: The City Council of Cleveland has increased the appropriation of the Board of Health for the ensuing half-year sufficiently to permit of the employment of six additional nurses and of the opening of two additional branch babies' dispensaries.

Deaths.

Fyfield Holt Longley, Eclectic Medical Institute, Cincinnati, 1867, died at North Platte, Iowa, aged 79.

James McFarland Evans, Cleveland University of Medicine and Surgery, 1868, died at Salem, Iowa, June 6, aged 70.

W. A. R. Tenney, Pulte Medical College, Cincinnati, 1882, died at Cincinnati, May 12, aged 61.

Louis Mortimer Early, Jefferson Medical College, 1881, died at Columbus, June 13, aged 52.

John Franklin Hudson, Western Reserve University, 1882, died at Canton, April 24, aged 59.

Benjamin F. Johnson, Eclectic Medical Institute, Cincinnati, 1883, a resident of Pontiac, Illinois, died at Chicago, April 26, aged 54.

William C. Lewis died at Rushville, June 5, aged 78.

Edwin Saunders Ricketts, Miami Medical College, 1877, died at Cincinnati, June 12, aged 59.

James Beatty Spencer, New York University, 1882, died at Wellston, June 24, aged 54.

Albert M. Williamson, Medical College of Ohio, Cincinnati, 1871, died at Cincinnati, June 13, aged 68.

Glen A. Emery, Columbus (Ohio) Medical College, 1879, died at Toledo, June 14, aged 59.

James Andrews Douglass, Miami Medical College, Cincinnati, 1880, died at Alliance, June 21, aged 54.

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AUGUST, 1912

No. 8

Undescended Testicle*

By V. C. ROWLAND, M. D., Cleveland

Synopsis:

Report of an unusual case.

Historical account.

Occurrence: Frequency. Side. Position.

Embryology: Gubernaculum. Processus vaginalis. Etiology. Coley's theories and cases. Discussion of case reported.

Physiology: Spermatogenesis. Internal secretion.

Pathology: Gross. Microscopic.

Complications: Acute inflammation; trauma; gonorrhea; mumps. Chronic inflammation; tuberculosis; syphilis. Hernia. Hydrocele. Torsion of spermatic cord. Malignant disease.

Treatment: Methods. Results.

The present study of undescended testicle is based on an unusual case, operated by Doctor C. E. Briggs, who kindly consented to this report and suggested a review of the literature on the subject, together with an analysis of the cases in the surgical records of the Lakeside Hospital.

This patient, a boy of 18, applied for treatment on account of a bilateral hernia, which was painful at times. The testicles were entirely missing, although there was an indefinite fullness over the left inguinal canal. The operation was begun on the left side, as in a Bassini herniotomy. The hernial sac was found extending approximately half way to the external ring. On opening the sac the veins of the cord projected through the posterior wall, covered only by a thin peritoneal layer, as in a congenital hernia. Slight traction on the cord brought the tes-

*This paper received the second prize of Fifty Dollars offered by the Cleveland Medical Library Association in a competition of essays on any clinical subject in general medicine, surgery or obstetrics, awarded December 5, 1911.

ticle through the internal ring, where it was held by a short pedicle composed of the spermatic vessels. The vas deferens was seen extending down from the globus minor into the upper part of the scrotum, then turning sharply on itself and passing back to the internal ring. The short, vascular pedicle was divided, and the two arms of the loop of vas separated about two-thirds of the way down. The testicle could then be placed in a newly formed pocket in the scrotum. The herniotomy was then completed. On the right side the condition was identical, except that the hernial sac was slightly shorter. Because of the uncertainty of the left testicle being properly nourished by the artery to the vas, the right testicle, loop of cord and sac were pushed back into the abdomen. The patient made a good recovery and left the hospital cured of his hernia and with one apparently healthy testicle in his scrotum.

Absence, or faulty descent of the testicle has been recognized in medical literature for centuries. Faulty positions of the testicles were described in the writings of Paré and Meibomius. However, the first scientific light on the subject was given by John Hunter in his description of the normal descent of the testicle and of certain anomalies in its descent. Koch, of Munich, in 1820, made the first attempt to correct the position of the testicle by a surgical operation. Lockwood, in 1887, is said to have made the most thorough-going study of the subject that has ever been made, especially in regard to the anatomy and function of the gubernaculum. His work served to substantiate in the main the classic views of Curling and Godard, which had previously prevailed.

The frequency of occurrence of undescended testicle is rather difficult to determine. Hospital records are made up mostly of cases presenting some complication, such as inflammation or hernia, for which the patient seeks relief. Marshall, in Kocher's *Surgery*, gives probably the most accurate statistics obtainable in adults, from the examination of army recruits. He found one case in nine hundred. However, this is probably entirely too small a proportion, as men knowing this defect in themselves would in many cases not apply for admission to the army. Moreover, the incidence in children is variable in inverse ratio to the age. Various authorities give the age after which the testicle is unlikely to descend from one to fourteen years. Odiorne and Simmons report a case in which the testicle could

not be felt at thirteen years, but in which it appeared subcutaneously above the external ring one year later. In early infancy, of course, imperfect descent is very frequent. Wrisberg reported 30 per cent at birth; Sack found 14 per cent in a number of children between one and four months.

As to the side affected, Eccles stated that faulty descent was much more common on the right, which is in accordance with the statistics of most writers. The reasons given are that the left testicle normally descends before the right, and lies lower in the scrotum, the left cord being somewhat longer. In cases of double retention it is usually more marked on the right, as in a case of left sided inguinal and right sided abdominal retention. This fact may be of value in determining which side should be operated in a double cryptorchid, when it is desired to bring down one testicle. However, there is no great preponderance of cases occurring on the left side—in several series 60 to 65 per cent. In the Lakeside Hospital series they were just equally divided.

Of the positions of the undescended testicle, that in the inguinal canal is the most common. Odiorne and Simmons, in their series, give the relative frequency of the different positions as follows: Abdominal 17, inguinal 51, pubic 18, puboscrotal 5, and subcutaneous, above the external ring, 1. Here again a larger proportion of inguinal cases are seen, because they are more liable to trauma and inflammation. The degree of atrophy of the scrotum is said to have some definite relation to the position of the testicle, being more marked in abdominal than in inguinal retention. In addition to the various positions in the normal course of its descent, the testicle may be found in the perineum, Scarpa's triangle, subcutaneously above Poupart's ligament, in fact in any position, where it might be directed by a fasciculus of the gubernaculum or some aberrant process of the peritoneum.

The embryology of the descent of the testicle becomes important in the study of these anomalies. The primitive genital gland first appears as a bud on the mesial surface of the mesonephros, in the lumbar region of the abdomen and close to the spine. Later it becomes more or less distinct, but connected with the mesonephros by a kind of mesentery, called the mesorchium. With the atrophy of the mesonephros, its mesentery combines with the mesorchium to form an elongated band, connecting with the diaphragm above and extending into the inguinal region

below, where it is known as the inguinal ligament. The latter structure develops further and becomes the gubernaculum. It contains fibrous and smooth muscle tissue, and, according to some, striped muscle tissue, derived as an ingrowth from the muscles of the anterior abdominal wall, near the internal ring. The inferior insertions of the gubernaculum have been a great subject of controversy among investigators. Lockwood showed that, during the sixth and seventh month, fibers of the gubernaculum penetrate the abdominal wall and extend into Scarpa's triangle, others become attached to the pubes and root of the penis, and others extend to the perineum behind the scrotum. In the eighth month dissections have shown the deeper fibres of the gubernaculum passing into the perineum and attaching to the tuberosity of the ischium, and even blending with the sphincter ani. The exact role of the gubernaculum in the descent of the testicle is not well understood. Lockwood believed it played an important part, the main fasciculus becoming attached to the bottom of the scrotum and by muscular contraction and atrophy pulling the testicle down. Others deny this entirely, saying that the greatest development of the gubernaculum is in the sixth month, while the testicle descends in the ninth month. Others attribute an important directing influence to the processus vaginalis, which appears as early as the third month as a small blind diverticulum of the peritoneum. This process gradually extends down through the inguinal canal, acquiring a covering from each of the layers of the abdominal wall, muscle fibres from the internal oblique remaining as the cremaster. The vaginal process has extended well into the scrotum by the eighth month, that is, a month before the descent of the testicle. The latter then passes down the inguinal canal and scrotum, behind the cavity of the processus vaginalis, but projecting into it, ensheathed by its posterior layer. The epididymis is still rather broad and with the cord forms a kind of pedicle, so that the testicle is quite mobile, and the resistance to its descent minimized by the smooth inner surface of the tunica vaginalis. If, for any reason, the peritoneal evagination was misdirected into the perineum or Scarpa's triangle, it would be easily understood how the testicle would follow and form the various kinds of ectopia of the testicle. After the normal descent of the testicle, retrogressive changes occur in the inguinal portion of the funicular process, reducing it to a fibrous cord—the ligamentum vaginale, extending

from the peritoneum to the tunica vaginalis. If the testicle does not descend, these retrogressive changes do not occur, and hence the almost universal association of hernia or a hernial sac with undescended testicle.

The exact cause of arrest in the descent of the testicle is difficult to determine. Those who believe in the importance of the gubernaculum say there is an imperfect development of the fasciculus leading to the bottom of the scrotum, and explain perineal, femoral and inguino-superficial ectopia of the testicle by an over-development of the corresponding fasciculi of the gubernaculum. Büdinger believes that some cases of faulty descent are due to a fetal peritonitis, producing adhesions between the testicle, epididymis and intestines, or by cicatricial contraction interfering with the descent. In some cases there is an anomalous development of the testicle itself. LeConte reported a case of fusion of the undescended testicles, the two cords running off to the inguinal canals on either side. Embryologically one might expect this to occur more readily than fusion of the kidneys, for they bud off from the mesial side of the Wolffian body and nearly meet in the median line. The older writers mentioned heredity as a causative factor in the etiology of undescended testicle, and examples have been reported. There were two instances of undescended testicle occurring in brothers in the Lakeside Hospital series of thirty cases.

Coley believes that the essential factor in faulty descent of the testicle is some anomalous development of the processus vaginalis. He bases his conclusions on a series of 126 cases, which he personally operated on. Every case in this series was associated with a hernial sac, several having a bilocular or a trilocular sac. Adventitious sacs, connected with the tunica vaginalis have been described in connection with inguino-superficial hernia associated with undescended testicle, but the explanation has been that the new sac was a prolongation of the peritoneum on the side of the processus vaginalis by the pressure of the hernia, the way to the tunica vaginalis being blocked by the testicle. Coley, however, reports the following case, in which such an explanation could hardly hold. A young man, with no history of hernia, suddenly developed, while engaged in the mild exercise of dancing, a large tumor, extending from the upper scrotal region to the anterior superior spine of the ilium. The tumor became very painful, and within twenty-four hours the patient

was taken to the hospital, where a diagnosis of strangulated omental hernia was made. At operation a large mass of omentum was found lying over the aponeurosis of the external oblique, and reaching as far as the anterior superior spine. In this case Coley believes one must regard the sac as a preformed, aberrant diverticulum of the peritoneum, coming off from the tunica vaginalis. Certainly aberrant evaginations and diverticula are not uncommon in embryological processes, and in the etiology of various congenital anomalies.

McWilliams reports a case of perineal ectopia with a hernial sac, extending to within one inch of the anus. There was no evidence of hernia clinically in this case, so that the peritoneal process must have been primary. In a similar case observed in Cleveland, the testicle descended into the perineum some time during childhood, and at the age of twenty-six, a hernia followed it. By this time a perineal scrotum had formed, with a growth of hair, a dartos muscle and rugae. At operation the testicle was placed in the undeveloped side of the scrotum, which later developed normally, while its perineal proxy disappeared entirely. This illustrates the close interrelation of all the structures in this region.

The descent of a loop of vas deferens in advance of the testicle is not so very uncommon. Coley reports a case in which the loop extended to the bottom of the scrotum and back to the inguinal canal. In fact, some (Moschcowitz, for example) claim that the vas deferens is never too short to permit of the normal descent of the testicle, but that the latter is retained by the spermatic vessels. This is the principle of the Bevan operation. However, the explanation of a distinct prolapse of the vas is rather uncertain. The gubernaculum, developing from the mesorchium, is originally attached to the epididymis, and if this attachment should, for any reason, exert a greater traction on the vas, it might be drawn down ahead of the testicle, especially if the latter were prevented from descending by adhesions, by a too small inguinal canal, or by being retained in some diverticulum of the processus vaginalis. There must be a gradual shifting of the attachment of the gubernaculum from the region of the mesorchium toward the testicle normally. It may be by a process of unequal growth, just as the urethra shifts anteriorly

in the process of separation from the cloaca. The attachment of the gubernaculum to the vas then may represent an incomplete stage in this process.

The functional capacity of the undescended testicle, both as to spermatogenesis and internal secretion, becomes important in the management of these cases. During childhood, the testicle, whether normally or abnormally situated, plays no important part in the bodily economy. Even after puberty, the undescended testicle is almost invariably imperfectly developed as regards size, consistency and minute anatomy. Most authorities agree that, in the majority of cases, the organ is incapable of spermatogenesis. Griffiths stated that there never was an authentic case of it, but this is probably entirely too radical. Odiorne and Simmons observed spermatogenesis in several undescended testicles removed at operation, and report a case of a double cryptorchid, who married at the age of twenty, and became the father of a boy ten months later. The testicles were very small, about one-eighth normal size, and quite soft when he married. There were no other children. This is in accordance with Monod, Arthaud and others, who believe that occasionally the function of spermatogenesis is established for a brief period of years, and is then lost. It has been stated that the function is never retained beyond the age of thirty. Griffiths, in experiments on dogs, has shown that if normally descended testicles be returned to the abdomen, they become soft and small and never show active spermatogenesis. The undescended testicle seems to have normal power of elaborating the internal secretion, for it is well known that patients with double retention and nonfunctionating organs have all the secondary sexual characteristics and desires of the male.

Pathologically the change is essentially a fibrous, atrophic one, which, if extreme, reduces the organ to a mass resembling a fibroma. The undescended testicle in the gross is small and soft. The epididymis may show some malformation and is often separated from the testicle by a more or less elongated band. The seminal vesicle and duct on the affected side may be atrophied. On cut surface the capsule is thickened, and the gland tissue does not bulge in the manner characteristic of the normal gland, although the tubules may string out well. Microscopically, the interstitial tissue is everywhere increased, and in it are the peculiar interstitial cells, which disappear normally about the

time of puberty in the descended testicle. These cells are large, endothelial in type, with large, rounded, usually eccentrically placed nuclei and well marked nucleoli. The cytoplasm is sometimes quite clear and transparent, sometimes finely granular and sometimes containing pigment granules. In many cases spermatogonia and spermatocytes may be distinguished, and very rarely an adult spermatozoon may be found.

The complications of undescended testicle are important, because it is usually on account of them, that the patient applies for treatment.

Acute inflammatory conditions are frequently traumatic, especially when the testicle is in the inguinal canal or just outside it, or when it is at the internal ring, with a hernia back of it. The pain is severe and frequently produces nausea and vomiting. Repeated inflammations produce marked atrophy and fibrosis of the organ. Suppuration occurred in one case in the Lakeside Hospital series during convalescence from typhoid fever. Cultures from the abscess showed no growth.

Gonorrheal infection may occur, regardless of the positions of the testicle or the degree of development. Acute epididymitis may suppurate and leave a sinus leading to a pus cavity.

Mumps has been mentioned as a cause of acute orchitis in the undescended organ.

Chronic inflammation is commonly traumatic, but, as a point of lower resistance, may become tuberculous or more rarely syphilitic. However, neither of these infections seems to be very common.

Inguinal hernia is of course by far the commonest complication of undescended testicle. Coley found a hernial sac present in every one of his 126 cases. Odiorne and Simmons in their series of ninety-two cases had a hernia in 57 per cent. In the thirty cases in the Lakeside Hospital, twenty-two or 73 per cent had herniae, all of the congenital type. Two had a hernial sac, making 80 per cent. In two other cases (in brothers), non-hernial sacs were described, that is, there was no communication with the peritoneal cavity. In the remaining four cases no statement was made. Undescended testicle entered into the etiology of hernia to the extent of 1 per cent in a study of nearly 100,000 cases (0.8 per cent, Coley; 1.7 per cent, Eccles). Hernia, associated with undescended testicle, is usually, but not always, of the congenital variety. Inguinal hernia is unquestionably

more apt to become strangulated when associated with an arrested testicle, according to Odiorne and Simmons. It occurred in ten of their forty-nine cases, nearly 25 per cent. The testicle may sometimes act as a ball valve, preventing reduction of the hernia. Interstitial hernia may occur between any of the layers of the abdominal wall.

Hydrocele may be associated with undescended testicle. It may be of the ordinary type, the funicular process being obliterated, but the commonest form is the congenital, reducible hydrocele.

Torsion of the spermatic cord is of rare occurrence. About half the cases reported (47 per cent, Scudder) are in cases of undescended testicle, and in all cases there was some abnormality present. If the testicle is imperfectly descended, the processus vaginalis is more or less patent and of large size below, so that the testicle has more space in which to become rotated on its long axis, especially when, as is frequently the case, the mesorchium has persisted in a rather elongated condition. This condition may exist in a very slight degree, appearing merely as a broadening of the digital fossa between the epididymis and testicle. It is doubtful if torsion ever occurs in the entirely normal testicle. Depending on the amount of interference with the blood supply, torsion may produce hemorrhagic infarction, with subsequent fibrous change, or gangrene. Torsion usually occurs in adults and following injury or muscular exertion. Symptoms frequently followed immediately after coitus in the cases reported, and simulated strangulated hernia, but with less constitutional disturbance. The treatment is orchidectomy.

Malignant disease has for a long time been regarded as a constant danger in the undescended testicle. However, Eccles, from a study of a large series of cases, concluded that there was no sufficient proof that it was of more frequent occurrence than in normally descended organs. In fifty-four cases of malignant disease of the testicle in the Massachusetts General Hospital, 11 per cent were in undescended testicles. Russell Howard found the proportion 16 per cent in a large series of cases. He also regards as very significant the fact, that the poorly developed gonads of pseudohermaphrodites are a frequent seat of malignant diseases. There have been a number of cases reported of unilateral undescended testicle with sarcoma occurring in the opposite or normally descended organ. Odiorne and

Simmons believe that sarcoma is somewhat more frequent in the undescended, than in the normal testicle, but that the percentage has been exaggerated. It is extremely rare in children. The average age is about forty years. It has been most often reported in inguinal testicles, but also often in cases of abdominal retention. These tumors may attain enormous size, and usually prove fatal within a year after the appearance of symptoms. Metastases occur as a rule early, and commonly to the spinal cord. Sarcoma, however, is not in general as malignant as the peculiar mixed tumors of the testicle. Pressure necrosis, often in multiple foci, seems to be common in these sarcomata. They are of various types, usually round celled, sometimes endothelial. The latter form, Hansemann believes, originates in the interstitial cells.

The treatment of uncomplicated cases depends entirely on the age of the patient. Since the testicles frequently descend shortly after birth, and may descend spontaneously up to about twelve years of age, and since the failure of descent does not interfere with the health and development of the child, treatment is not indicated at this time, except massage and perhaps daily traction on the testicle to favor its descent. Eleven or twelve years is about the age at which plastic operations are most successful, both as regards the ultimate position of the testicle and its integrity. If the testicles are markedly atrophic and in all probability functionless, castration should not be performed, as the internal secretion is still produced, and even atrophic testicles support the mentality of the patient. Most writers advise that no double cryptorchid should be allowed to reach puberty, without an effort being made to bring down one or both testicles. Abdominal retention, however, unless double, should be left untreated, because of the difficulty and uncertainty of the operation.

Orchidopexy, or a plastic operation in some form, is the desired treatment; orchidectomy and replacement into the abdomen are compromises occasionally necessary. The operation is usually begun as in a Bassini herniotomy. The cord is dissected up and fibrous strands divided, to gain as much added length as possible. The shortness is usually due to the blood vessels (Moschcowitz), the vas being tortuous. Ligation of the vessels may occasionally result in gangrene of the testicle, or more commonly atrophy. Miflet and Griffiths, in experiments on dogs, concluded that ligation of the spermatic artery was always followed by hemorrhagic infarction and fatty degenera-

tion of the testicle, a portion of which may later resume its function. Practically, there is usually no gross change in the gland. If, as is rarely the case, the vas is short, the epididymis may be partially dissected free from the testicle, and the organ inverted. Additional length of an inch or more may be obtained by dividing the deep transversalis fascia from the external ring to the spine of the pubes, giving a more direct route for the cord (Fowler, Blake). If gentle traction is necessary to keep the testicle down, stitches may be put at the external ring, or long sutures through the lower pole of the testicle and base of scrotum, extending down to be attached to the thigh temporarily. Katzenstein described an operation in which the testicle was drawn down through an opening in the base of the atrophied scrotum, and sutured to the inner side of a pedunculated flap of skin dissected up from the inner side of the thigh. The flap was later cut off and made to form a new base for the scrotum. Starr reports a method of using a piece of silver wire as a splint for the testicle. He attaches it with catgut to the periosteum of the pubic ramus and at the other end the testicle at the bottom of the scrotum. When it has served its purpose, the skin overlying the lower end can be incised and the wire drawn out. Recent writers maintain that it is rarely necessary to hold the testicle down, if the spermatic vessels are divided and the whole length of the vas is rendered available.

The testicle can usually be brought down by one of the above methods. Statistical results vary, according to the methods used and the views of the operator as to the value of preserving the undeveloped testicle. In the majority of the Lakeside Hospital cases orchidectomy was performed without attempting to bring the testicle down, especially when the defect was unilateral and the gland atrophic. Nine plastic operations were done; in two the testicle was subsequently removed on account of pain. In seventy-nine plastic operations in children Broca had thirty-one perfect results and thirty-five good results, but with the testicle remaining high in the scrotum. Coley had to resort to orchidectomy in only two out of thirty-eight cases. It is important to operate these cases about the time of puberty, as the results in adults are less favorable.

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A Brief Visit to Some of the Hospitals of Italy.

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This article makes no pretensions to being a deliberate study based upon a systematic canvas of the hospitals or of medical conditions in Italy. It merely records some of the casual observations of a traveler. Medical Italy has been undeservedly slighted, and is comparatively unknown to the majority of medical Americans, even those who go abroad.

Naples

Naples is the most populous city of Italy. It has in round numbers 493,000 inhabitants in the city proper, which the immediate suburbs, really continuous with the city, augment to 550,000. It is the capital of a province of United Italy, the seat of an archbishop, headquarters for the 10th Army Corps, and has a University with several departments of learning including a medical department.

Ospedale Lina:

To me one of the most interesting places in Naples to visit is the *Instituto Ortopedico Tereso Ravaschieri*, as it was formerly called, but which is now generally known as

the *Ospedale Lina* and receives all kinds of surgical cases of children. I am told it is the only exclusively surgical hospital for children in Italy. It bears the name of Ravaschieri because of benefactions bestowed by a Princess of that name, a bust of whom in marble with a noble-looking face, adorns one of the rooms.

The Institute has a fine situation west of the center of the city and part way up the crescent-shaped mountain slope upon which the city is built. The upper stories and balconies command a beautiful view over the buildings below, and the Bay of Naples scarcely a quarter mile distant, with Vesuvius, the Peninsula of Sorrento and the cities of Castellamare and Sorrento at the left, Posillippo and Nisidia at the right and the island of Capri in the haze of the central background.

The wards are large and airy, and well lighted although having only great windows at the ends. There are about 130 beds. The age limits are three to ten years. The hospital is undergoing great alterations and improvements during the past two years, under the directorship of Doctor Eduardo Salvia, who has seven colleagues upon his staff. The old apparatus is being replaced by new. A new operating room is in course of construction, in the most modern style, on the third floor away from all noise and dust, and well lighted. Ample high-ceiled rooms on the ground floor are to be devoted to an Out-Patient Department, Pathological Laboratory, X-rays, etc.

I was very much pleased with the plans under way for perfecting the institution, with the evidences of good management and care of the patients, and the good surgery that is being done. As might be expected after our experience with the Italian people in the United States there is a very large amount of rachitis among the children here, with many deformities to be corrected. Of the cases in the hospital during my stay in Naples rickety deformities of the lower extremities seemed easily to head the list in point of numbers.

Tuberculosis, of course, is common and there were a half-dozen recently resected knees in one ward, and they have (it seemed to me without going into statistics) a larger percentage of osteomyelitis than with us. Vesical calculus is more common than in Ohio. They have twenty to thirty cases in this hospital during a year. More of them come from surrounding towns than from Naples, many being sent from one neighborhood, that

of Castellamare. The stone is removed by the suprapubic vertical incision and the patient sent home in about a week. In the rickety deformities they seem to deal very patiently, seldom operating until the sixth or seventh year if the bones appear at all yielding, but with food and medicine and some use of braces endeavor to effect recovery without operating. This failing, or the bones becoming rigid in deformity at an earlier age, osteotomy in genu valgum and varum and in saber legs, and osteoclasia in bowleg are, as with us, the usual procedures.

In osteotomy of the femur McEwen's is the favorite operation. In osteoclasia they use the Rizzoli instrument, and were quite interested when I described the handier, quicker and more efficient osteoclast of Grattan. I think they resort to osteotomy in some cases in which Americans would do osteoclasia.

They do a goodly number of herniotomies here, the operation preferred in inguinal being Bassini's original, with transplantation of the cord, which is really not necessary in boys.

For a fixed dressing they use a great abundance of cotton, then a zinc or wood splint, with plaster of Paris over all.

During my stay in Naples Doctors Salvia, Chiarolanza, Catalini, and Caprioli, of the staff were most courteous. Doctor Salvia was especially kind, and Doctor Catilini changed the day of his clinic in order that I might see his work in osteotomy and osteoclasia, which was very good work, and invited me to operate. These incidents are mentioned as examples of Italian politeness such as one met everywhere among the profession.

Ospedale dei Pellegrini:

The *Ospedale dei Pellegrini* at Naples is a municipal institution of 120 beds with possible accommodations for 20 or 30 more, and a staff of fifteen. I was told by the laity and some doctors that it is the greatest hospital in Italy, but surmise that civic pride, fed by the encomiums of tourists, is fairly developed in this part of the world. The city has also a hospital for incurables.

The work at *Pellegrini* is principally in the line of emergency surgery, to which the narrow and congested streets and the excitable temperament of the Neapolitans contribute not a little. Many varieties of emergency conditions are on exhibition here. Stab and incised wounds are most common. A police station is located right in the hospital, and officers are always

busy with their questions and note-books about the place, especially in the receiving and dressing departments. The nursing is done by Sisters of Charity assisted by male orderlies and female attendants. There is no special department for children, who are received in the general wards with the adults.

The equipment at *Pellegrini* is decidedly shabby, yet Doctor Nicola Longa and his colleagues are doing good work. The hospital is used for teaching in the Medical Department. In answer to my inquiry as to salary Doctor Longa smilingly told me that he receives 40 lire (equal to \$8.00) per month. Of course he is privileged to do outside work.

Policlinico:

The *Policlinico* at Naples is the principal hospital used for teaching in connection with the Medical Department of the University of Naples. It is far better as to buildings, plan and equipment than *Pellegrini*, but like most European hospitals and houses, it seemed to an American insufficiently warmed. Even the operating room was so cool that I was not sorry to be requested to keep my hat on while watching operations. This, by the way, from force of habit, I found it impossible to do. It was Doctor Pascale's work on club-foot I admired here. It was most workman-like, though his assistant persisted in being awkward. Here, as often in Italy, one sees the linen or cotton gloves worn outside of the rubber gloves, as slipping of instruments and ligatures is complained of; and one seldom sees either hands or instruments, however stained, rinsed during the operation.

Rome

Rome, in ancient times the capital of the world, is since 1871 the capital of the Kingdom of Italy, and also has located there the residence of the pope, shorn of his former temporal power. The official census of Rome (estimated) gave the population as 499,711, including a garrison of 10,798 men.

Policlinico:

In Rome the great hospital is the *Policlinico*. It is a very fine plant, well situated and in ample grounds. Its capacity is about 1,200 beds. Within its large enclosure are sixteen buildings, if I counted aright, of stone and brick covered with stucco, many of them four stories high. There are ten separate pavil-

ions, connected by corridors both open and closed, and also by underground passages. The hot water heating system and the "*cucini*" are central. Ventilation is by flues. The buildings are quite modern, are fireproof and some of them new.

There are three surgical pavilions, but no separate pavilion for children. Children are placed in the wards, medical or surgical as the case may be, with the adults. A children's ward is projected and soon to be built. There is very little emergency work done at this hospital, but cases are sent not only from the city itself but from all the country round. There are two chief surgeons, Prof. Dott. Francesco Ferreti and Prof. Dott. Raffaele Bastianelli.

During the past two years they have been introducing at the *Policlinico* the English system of nursing. In other words, they have imported twenty to thirty trained nurses from the hospitals of London and placed them in charge of two of the pavilions, one medical and one surgical, with a training school in connection. Italian nurses are being trained. At first the plan was somewhat difficult in the execution. Not as between the medical staff and the nurses, but between the English nurses and the patients. Not only for the reason that the English nurses knew too little of the Italian language, but also because the patients thought they were being too much interfered with and disciplined by the foreign nurses. But the staff stood by the nurses; and the nurses are very loyal to the staff; and the patients have learned to appreciate better that what is being done is all for their good, and all seemed to be progressing successfully, so far as I could tell.

Of course there is a large corps of assistants and visiting physicians and surgeons on the staff, and then a house staff; and, as is the custom in Italy, all the principal places, even up to that of chief surgeon, are filled by competitive examinations. One of the chiefs told me that he did nothing else, not even private practice, during six years, but study for examinations before he got his present position. There are sometimes thirty or forty contestants. Some men so exhaust their energies in the struggle to get a position that they can afterward do nothing efficient or original, while many, really perhaps quite as able as the winner, but less successful in passing examinations, are discouraged at their failure, see no other opportunity open, lose ambition and settle down into mediocrity.

I became quite interested in the surgical clinic of Professor Bastianelli, and spent much of my time there. And Rome has so many other attractions in its art collections and historic ruins that one is led aside from the rugged road of science. So that I failed to visit the *Ospedale Gesu Bambini* as I had intended, having been told at Naples that considerable good work was being done among the children there. I remember a previous visit to the *Gesu Bambini* twelve years ago, and of being quite well pleased at that time with the institution.

Florence

Florence also is a city so beautiful in its situation and surroundings, so rich in its treasures of sculpture, painting, mosaics and architecture, with an atmosphere so surcharged with historical and legendary lore, so illuminated by the names of the renowned citizens of its varied past, that I doubt if any physician would or could while visiting there confine his attention to the things of today or to technicalities of our art. But medical science is a jealous mistress and will not brook lack of attention.

Ospedale Maria Nuova:

The largest hospital in this city of about 160,000 people is the *Ospedale Maria Nuova*, which is said to have 2,000 beds. It was so packed in among other buildings, and its wards were so rambling that I could form no opinion whether this statement is correct. Like so many hospitals in Italy it occupies buildings built and formerly used as a monastery. It is supported by the municipality and also by contributions. The present chief surgeon, Professor Bursci, has held that position eight years. The equipment is old and meager for the size of the hospital. The operators usually work bare-handed, excepting in septic cases when they use heavy rubber gloves, such as are used here in making autopsies, and by undertakers. When asked about gloves they replied that "the hospital is not so rich" as to furnish rubber gloves. It seems rubber gloves cost 8 liras a pair (equal to \$1.60).

In this clinic anesthetics are begun with chloroform and continued with ether. The needles are of the self threading variety, as seem to be the fashion in Italy. Silk is always used internally except to the peritoneum. Instruments are lifted from a 2 per cent solution of carbolic acid. In draining after

laparotomy the Miculics style of drain is employed. The men at the *Maria Nuova* were aware of the ancient type of their buildings and of its equipment, but they urged me to see the *Ospedale Meyer*, which was modern.

Ospedale Meyer:

To do so I needed no urging, for the *Ospedale Meyer* is entirely devoted to children, and although its buildings are separate and its staff separately organized, it takes the place of a children's department to *Maria Nuova*. The men connected with the hospital are connected with the Medical School of the University of Florence, and some of them with both hospitals.

The *Ospedale Meyer* is located on the rising ground at the northern edge of Florence, toward Fiesole. The central building was built in 1886 as a memorial to Anna Meyer by her husband. The building remained idle for about ten years, when agitation revived interest and procured aid, mostly from the municipality, and it was enlarged and put into use and has since received additions, and is a really fine plant and well operated.

The rear of the central building is crossed by a long corridor and behind this corridor extend the separate pavilions or wards two stories high. There are 160 beds for boys and girls, and also an infants' department. The maximum age of patients is ten years. There are operating rooms, both upstairs and down, X-ray rooms, and laboratories, well equipped, and specimens and records are systematically kept. There are observation rooms for admitting or temporarily isolating patients; and there is a library with books and journals, mostly in Italian and French, though the *Archives of Pediatrics* was among the Journals. I was assured here that the *Rivista di Clinica Pediatrica* was the best Italian journal on its subject. Several Florentines are upon its staff of collaborators. As a part of the hospital and in the same enclosure, is the Out-patient Department, in a separate building, recently built and well adapted to its purpose. This department was in active operation. There is also a separate building for infectious cases, with suitable separate examining and admitting rooms. For cases kept here the municipality pays the management 3 francs, 20 centimes, equal to 64 cents a day. Taken altogether the institution called for hearty admiration and congratulation. There is at least one city in Italy

where the children's hospital is the best the profession and public are able to exhibit.

There are two chiefs, one each on the medical and surgical sides. Each chief has four assistants, two paid by the National Government, and two by the hospital. The chief surgeon does his work as *Clinica Chirurgica Pediatrici* gratis, but as Professor in the University and *Directore Istituto Patologia Chirurgica* he receives 7,700 lires yearly (\$1,540.00) and is privileged to do private practice. Seven hundred lires of this is for the work of Director of the Institute of Surgical Pathology.

In connection with the work of *Ospedale Meyer* there was opened, April 15, at Viarregio, on the sea-shore, a summer hospital of 30 beds for surgical cases, under the care of an assistant surgeon from *Ospedale Meyer*.

Bologna

In Bologna the interest of the medical traveler of course centers upon the *Istituto Ortopedico Rizzoli*, founded by that eminent surgeon Francesco Rizzoli (1809-1880), who expended upon it during his lifetime two million francs and at his death bequeathed for its maintenance and extension, six millions of francs.

It is most beautifully and salubriously situated upon a high hill just outside of Bologna (which extends upon a plain) and it commands a panoramic view of the entire city and country around. The grounds of the Institute are extensive, with gardens, walks and groves; and the buildings are commodious and substantial, having been built originally and used as the convent of S. Michele in Bosco. I will not attempt a detailed description of the Institute. Suffice it to say that it is as Rizzoli intended, a model orthopedic institute, upon a very large scale. The hospital issues an illustrated book describing not only the church and the convent with their beauties of architecture and ornamentation, but the kitchens, wardrobes, laboratories, dynamos, gymnasias, Zander, Schultheiss, Wullstein and numerous other apparatuses, operating rooms, water, chemical, light and electric baths, museum and other interesting features of the Institute.

Venice

In Venice not one of the 15,000 houses and palaces is new, and but for the cleansing tides of ocean and the pure air, the place would become uninhabitable. As it is the 150 canals, par-

ticularly the smaller ones, often float garbage and smell very like sewers, and the musty, grand old churches have an odor quite other than that of sanctity—more like that of catacombs. The hotels were not built for hotel purposes, most of them are hundreds of years old and were formerly palaces of ancient grandees whose coats of arms decorate their architecture and whose portraits sometimes remain as more or less of an adornment to the walls of museums.

Ospedale Civile:

Likewise the great hospital within Venice proper, the *Ospedale Civile*, was never intended for that use. It was formerly a Dominican Monastery, that of *Santi Giovanni e Pauli*. The church of that name still adds its imposing size and venerable appearance to the great thick walls of the Monastery now used for a hospital since 1817. The mere entrance to the place is almost large enough for a small hospital, and one could easily get lost in the rambling corridors leading to the various departments, which, however, are well separated, but all in the same pile of buildings. There are three departments for surgery, four for medicine, besides obstetric, eye, Jewish, a large syphilitic and genitourinary departments, and one for children. Only the medical cases in children are kept in a separate department, the children's surgical cases being in the wards with adults. The hospital library is contained in a beautiful large room, large enough for a church, with a lofty ceiling magnificently carved in dark wood resembling walnut done by some famous Venetian carver. The collection of books was not elaborated in proportion to the room. But there was a goodly file of present day journals in Italian, French and German, though not a single one in English.

The general wards are large. One in particular, a men's ward, the *Sala San Marco*, in the service of Professor Vitali, contained 93 patients; and I was told it had accommodated as many as 131 patients at a time. Here also was a ceiling finely carved in wood. A surface cleansable would certainly be more to the purpose. However, these converted monastery buildings have one or two redeeming features, viz: The rooms are usually lofty, perhaps twice the height of an ordinarily high ceiling, and they sometimes have windows high in proportion to their walls. Many of them are practically fireproof.

Usually there is no heat, or but the least imaginable. In winter the rooms are cold and at night vault-like, as compared with our hospital wards. The method of conveying the food from kitchen to ward through the large establishment is as simple as possible. It is carried in kettles by attendants, and dished by other attendants or nurses in each ward.

In the *Ospedale Civile* each kettle or metal pail of food was covered with a lid which closed with a hinge and fastened with a hasp, and furthermore the hasp was locked with a large padlock before leaving the kitchen, and again padlocked on leaving the ward to be returned to the kitchen. Evidently experience with the natives has taught the management something like it has taught travelers.

I was interested in the surgical work of Professor David Giordano, who by the way speaks a little English. One finds here, as is usual elsewhere in Italy, the chief surgeon, an able man, sometimes with one or two efficient assistants, but working with lack of organization for "team work," and usually with a corps of nurses much inferior to ours in intelligence and training, though often faithful and methodical in simple duties.

The making of autopsies and studying and recording pathological findings were scientifically carried out by a man on salary, who devoted his time entirely to that work.

Although it is probably true, as stated, that one quarter of the 150,000 people of Venice are beggars, there were very few children in the hospital and these only of the most utterly poverty-stricken parents, for the reason that it is popularly considered that she is "not a good mother" who, unless compelled by abject poverty, allows her child to be taken to a hospital.

Other Hospitals of Venice:

Venice has also the *Ospedale Umberto I* for "*malattie croniche*," the *Ospedale S. Chiara*, which is a military hospital, the *S. Anna*, also called a military hospital but connected with the navy. Besides these, situated upon islands in proximity to Venice are *S. Maria dell Grazie* for tuberculosis; *S. Servilio*, for *uomini pazzi* (men insane); and *S. Clemente* for *donne pazzi* (women insane).

Milan

From Venice, the most quaint and strange of the cities of Italy, one goes conveniently by rail to Milan, which is the most

modern in appearance and manners, the most like an American city of any of them. In point of population Milan ranks next after Naples, having 520,000 inhabitants; but financially it is the greatest of the country, and is also important in manufactures.

*The Ospedale Maggiore and the Instituti Clinici di
Perfezionamento:*

The idea of having in Milan an institute of medical culture and advanced postuniversity teaching is very old. It began in 1634 and fell and rose many times, never being quite annihilated, but reappearing and progressing under various fortunes, always attached to the *Ospedale Maggiore*, until the last period of the Austrian domination when for political reasons it, like many other aspiring causes, was abolished. With the establishment of United Italy that ideal came to life again. But objections were raised by the nearby town of Pavia, in which a famous old University was situated, and which feared an absorption of the University by the elder sister-city, Milan.

So the question was long debated without practical results. It was only in 1900 that the friends of the plan succeeded with the help of the municipal, the provincial and the national governments, in establishing: (1), a Clinic for Obstetrics and Gynecology; (2), a Clinic for Professional (or Occupational) Diseases; and (3), a Clinic for Epidemic Contagious Diseases. Around these three grew afterward an Orthopedic Clinic (which developed from the already existing *Istituto Rachitici*), and several institutes of less magnitude, as one of Stomatology, one of Professional Hygiene, etc., and one of Serotherapy, which was afterward enlarged under the name of Institute of Physio-Pathology and Experimental Therapy of Infection.

The aim of these institutes is to give complementary or so-called postuniversity instruction to the practical physician; and at the same time afford opportunity to use for further scientific study the large amount of material furnished by the populous city of Milan and its suburbs. Thus the Institutes neither supplant nor rival the University of Pavia. They give no degrees but only certificates of work done in the Institutes. They constitute the finest organization and equipment for post-graduate and medical research work to be found in Italy and they are really first class institutions.

I will give briefly some idea of the plant used for these Institutes, which are part and parcel of the *Ospedale Maggiore*.

Istituto Ostetrico-Gynecologico:

The Institute of Obstetrics and Gynecology is composed of two great divisions as the name would indicate. In the center there is a large building for the administration, library, laboratories, pharmacy, and private rooms for pay patients.

The *infermeria* (*sala* or wards) are nine in number, three on the main floor and six on the upper floor, with ten to fifteen beds in each. Two of these wards are used exclusively for operative cases. There are delivery rooms, operating rooms, an incubator room, and rooms for doctors, for nurses and for the student midwives. There is a large school for "*levatrici*" or midwives, (as many as 200 at a time) in connection with this Institute. These *levatrici* receive a thorough training in their work, very similar to that of the "*Sage Femme*" in France and in practice in their various communities they attend a majority of the ordinary cases of labor. This question of midwives is one that needs consideration seriously both in Italy and in this country.

In connection with this Institute there is a very fine laboratory with all the facilities for thirty students. There are all the apparatuses for experimental work, and stables of cement with three types of cages for numerous animals. The kitchens and laundrys are complete.

There is also a pavilion for isolation, having three wards, one large for women affected with cancer which cannot be operated, a second for women with puerperal infection, and the third a small one (only six beds), for tuberculars.

Clinic for Professional Diseases:

The objects of this clinic are to study scientifically the causes of professional or occupational diseases, to spread the clinical knowledge of them among physicians, to receive for diagnosis and treatment workers suspected of or affected by professional diseases, and to supervise periodically the conditions affecting the health of those working in factories or at unhealthful occupations. The building has four floors. The lowest has the engines, boilers, general stores and also the laboratory of clinical physics and rooms for physical therapy, the records, the

library and refrigerators. The next or main floor has the administration office, offices for physician on duty and assistants, rooms of the out-patient department, the school or lecture rooms, and laboratory for quick clinical examinations, the kitchens and baths.

The next floor higher has the clinical laboratory, rooms for female nurses and attendants, two wards for patients (twenty-four beds in each ward) and a meeting room for the International Commission for Professional Diseases. The top floor has laboratories for bacteriology, for diagnosis and experimental therapy, for histology and for clinical microscopy, rooms for assistants, and two wards of twenty-four beds each.

This Institute has been in operation two years; and it seems that as a rule patients do not come of themselves directly to the Institute, but are found among patients of the general hospital or among groups of workers examined methodically. Besides the treatment and study of fully developed cases of professional diseases, the Institute has shown its usefulness in reassuring workers about their personal organic condition and encouraging them to continue in their own occupation or if unfit in advising them to take up another one; and in giving to workers instruction and advice (medicohygienic), about their profession; by periodical medical control in reaching a diagnosis quickly, oftentimes in incipient stages of infective and other forms of disease directly the result of the profession; in issuing certificates of health and capability for certain occupations.

Clinica Ortopedica:

La Clinica Ortopedica, as it is now called, established in 1906, originated in the *Instituto dei Rachitici*, which began in 1874. It has four pavilions joined by corridors. There are eight wards, in all seventy beds, for children. In two other pavilions are about forty-two beds for adults; also one pavilion for isolation. There is one pavilion elegantly fitted up, including fifteen private rooms for pay patients. But about 125 beds are for charity cases. The average number of cases treated is about 2,000 yearly. There are fine verandas, sun rooms, open air play-rooms, gymnasium for both children and adults; a room for mechanotherapy with apparatus (usually those of Herz) for active and passive movements.

There are rooms and apparatus for electrical diagnosis and treatment; a special department for functional scoliosis, and other deformities of the spine; laboratories for X-ray work; for anatomical and pathological work; a school for teaching some useful trade or occupation to the mutilated or deformed, and in connection with the latter a shop for making and mending orthopedic apparatus.

Clinica della Malattie Epidemico-Contagiosa:

This has four great pavilions, one each for diphtheria, variola, scarlatina and measles; and a smaller pavilion for observation. All the buildings are widely separated, in ample grounds, and each has its own enclosure fenced with wire netting.

*Istituto di Fisiopatologia e Terapia Generale delle Malattie
'Infettive:*

This Institute has one large building with a basement and three stories, for the receiving, sterilizing, preserving, and delivering of sera; chemical and bacteriological laboratories, a laboratory for ultramicroscopic work, a special room for serotherapy, and a special laboratory for the preparation of vaccines, and another for organotherapy. Also there are students' lecture rooms and laboratories, and the necessary office for director and assistants.

Istituto Stomatologico:

This is the first separate school of stomatology (including dentistry) in Italy, and while it is as yet nothing great it is doing good work.

Genoa

Genoa is the chief commercial city of Italy. It has 155,900 inhabitants, an archbishop, and a university. The city is strongly fortified and is headquarters for the Fourth Army Corps. It rises above the sea in a great semicircle behind its famous harbor.

At Genoa it was especially hard to obtain an interpreter to visit the hospitals. Prospects of serving a large party of sight-seers were more attractive to the guides; and worse than that, fear of hospitals, operating rooms, sickness and all that pertains thereunto was so great that offers of double fees and generous tips could not overcome it. However, after many delays and broken bargains I visited first the *Ospedale San Andrea*.

Ospedale San Andrea:

This is a fine large place and well situated. It is built on an expensive plan from money contributed by the Duchessa dei Ferari some twenty-five years ago. It is regarded by the profession as a mistake, economically speaking. It abounds in halls and staircases of marble. It cost some twelve million lire (\$2,400,000.00), and its utmost capacity is about 400 beds. But it never has more than 200 patients, and costs for maintenance about 6,000 lire (\$1,200.00) per bed per annum, so I was informed. It might be classed as a general hospital, but no infectious cases are admitted, and by the terms made by the Duchessa who founded it, syphilis and tuberculosis are excluded. And there are no children there. The majority of the cases are surgical. The two chief surgeons are Doctor Passagi and Doctor Segale. I had an opportunity to see some of the work of Doctor Passagi which he did as one practiced in the craft. I was pleased to observe that the car for conveying the patients to bed after the operation was furnished with a thick mattress and plenty of blankets, a point I have too often seen neglected. It also had side rails, not a bad feature; but it was not artificially warmed, as it might have been with advantage. Those people do not seem to be very sensitive to cold, never living in rooms that would seem to us to be comfortably warmed.

Ospedale Dei Chronici:

The name of this hospital is misleading. It seems that it was formerly used only for chronic cases, but more recently as a general city hospital for both chronic and acute cases though still retaining the old name. It is situated in the thick of the downtown district and is a very old place, having been built in the 15th century. Its redeeming features are that it is built of masonry, with stone stairs, and is therefore practically fireproof, and that the ceilings are high. To be sure the rooms are large, but then, large numbers of patients are crowded into them. There are many stairways and winding passages and yet all the wards and rooms are massed together with no opportunity for sunshine, proper ventilation, or for separation of various classes of patients or even isolation of contagious cases. The entire hospital has 800 to 900 beds, about 200 being for children, one-half of these being surgical cases. I was shown successively through the children's surgical wards into a wardful of diphtheria con-

valescents, into a steaming-room containing several diphtheria patients recently tracheotomized, and some intubated cases, through the children's medical wards, all in the same building and opening off the same hallways, without any visible precautions.

Smiling Sisters in their uniform garb kept pretty good order among the numerous children, but the floors were littered, and the general appearance untidy. The operating room was ill adapted and ill furnished, even with ordinary requisites. It was heated, or I should say it could possibly be warmed by one of the crockeryware stoves common to the country. It had a stove-pipe angling up the walls on two sides of the room and thickly coated with dust. I wonder that the doctors can show as good results as appear. Everybody in the establishment is looking forward to the new hospital, of which I will speak later. None of the vast material in this hospital is at present utilized for teaching purposes. Doctor Badano is the present director.

Ospedale Pammetone:

The teaching of the Medical Department of the University of Genoa, which has about 300 medical students, is done at this hospital, which is under the same administration as the *Ospedale dei Cronici*, the ultimate power being the city authorities; but it has funds also from private benefactions. Doctor Rolandi is regarded as one of the best surgeons at *Pammetone*, and Doctor Capuro another. Professor Novaro has charge of the children's surgery, though there is no special department for children. They are accommodated in the wards with the adults and there were very few of them. Nearly all of the children are sent to the *Ospedale dei Cronici* and are not used for teaching. Here also is conducted the medical clinic of Professor Dott. Maragliano, who has invented an antituberculosis serum, is now busy advocating vaccination against tuberculosis, and is altogether a very active man, more or less continually in the public as well as professional eye.

Ospedale San Filippo:

There is also in Genoa a small *Ospedale San Filippo*, founded by the same Duchessa del Ferrari who founded the *San Andrea*. It contains thirty or forty children, medical and surgical cases under the direction of Doctor Perando, who resides there and is

chief surgeon and physician. He is allowed lodging for himself and family and some 3,000 liras (\$600.00) annually, and takes cases in private practice and consultations besides.

Ospedale San Martino d' Albaro:

The great hope and pride of all in Genoa who are interested in hospitals is one in process of construction just outside the city at San Martino d' Albaro. A piece of land comprising one hundred and fifty thousand square meters—(I hope I have stated the figures correctly, the plot looks quite large) will comprise the site, and buildings have been projected which will take care of 2,000 patients to begin with. The accommodations can be later expanded to 3,000 beds. There will be forty separate pavilions two stories high, for about sixty patients each. Five pavilions are already done, and present a handsome appearance. There will probably be also some provision made for pay patients. Owing to pressing need some of the ground is already partly occupied by tuberculars in tents; and at the time of my visit more were being brought up the hills upon wheeled litters (propelled by men on foot) such as are used for ambulances in Italian cities.

It is expected to have the hospital completed in two years. The part completed looks as if it would still be good in 500 years. I wonder if it will then seem as out of fashion as the old "*dei Chronici*" does now. This last mentioned is to be torn down as soon as *San Martino* is completed and the property, which is valuable, sold to help the fund for the new hospital. Excepting that a part of the property will be kept as an emergency hospital, as it is right in the middle of the city. Ultimately some of the pavilions at *San Martino* will be utilized for teaching, by contract between the University of Genoa and the administration of the city which controls the hospital.

General Remarks

Now although taking considerable space I have presented only a mere glimpse of a few of the hospitals, and would like to make some general remarks in closing.

Members of the profession were uniformly courteous, and anxious to show all that could interest the visitor. I do not believe that Freemasonry, Oddfellowship, or any fraternal organization has any grips, signs or oaths more potent than those

which unite and convey a mutual understanding between members of the medical profession in any part of the world that I have ever visited. Italy is no exception.

Many of the hospitals visited were, as I have noted, upon the average inferior to ours in point of furnishings, equipment, and conveniences for executing the work, and for the safety and comfort of patients. They are encumbered by slatternly help. The nursing is inferior in intelligence to ours.

Speaking now of the work going forward in the operating rooms it seems to me their corps of assistants is less intelligent and quick of apprehension than ours, but more patient and I am afraid more industrious, and I am sure their organization for "team work" is less complete.

We, on the other hand, are making the training of our nurses too complicated, and are not making them as useful in proportion.

We are handicapped in many hospitals by the frequent changes in the service of nurses and assistants necessary in training schools and in rotation of service in the house staffs. These changes raise the general average of efficiency but do not develop the highest skill possible after long training. Too many of our young men and women are apparently afraid they will spend too much time and work in study, and will thereby learn more than is really required to enable them to go out and earn some money.

To avoid errors we should endeavor to keep our technique as simple as is compatible with efficiency, and zealously enforce the drill in those assuming new duties.

The average American hospital by comparison is weak in the making and keeping of histories and records of cases, and in laboratory work, and in its autopsies and pathological work. We do not give enough attention to these departments.

The members of the medical staffs of Italian hospitals are most of them, aware that their facilities are inadequate. But many of the hospitals are still in the hands of organizations whose funds are administered by the clergy and surviving members of noble families, who cling to the old ways and have an immense influence in retarding progress. The public is slow to be educated to the point of action upon matters of health and sanitation, and is not yet even fully awakened to its own duties

and powers. But it is gradually freeing its mind of the domination of superstition and dogma.

We should remember that buildings and equipment are not everything nor even the principal thing necessary in medical work, though they are valuable aids; and bear in mind that Italy is the country that has given the medical profession Mondino de Luzzi (1276-1326), Roger of Palermo (1260-), Ingrassias (Naples 1510), Eustacchi (died 1574), Fallopio (Modena 1523-1562), Malpighi (Bologna, Messina, 1628-1694), Valsalva (Imola, 1666-1723), Morgagni (Padua, 1682-1772), Santorini (Venice, 1681-1723), Caldani (Bologna, Venice, Padua, 1725-1813), Spalanzani (Reggio, Modena, Pavia), Cotugno (Naples, 1736-1822), Scarpa (Modena, Pavia, 1747-1832), Bacelli (b. 1832), Porro, and very many other brilliant names that were not born to die. I have not even mentioned some of the most learned and skillful men in our profession today, among whom the names of Botini (Padua), Bassini, Golgi, Carle, Dantona, Gatti, Novaro, Durante, come to mind.

The improvement of medicine and surgery in Italy rose and fell with the general culture, influence and power of the great cities and provinces of that country. Now with the cessation of the warfare between cities and provinces, and these united into a nation which is feeling as never before a national spirit and responsibility, and beginning to appreciate the necessity of political solidarity, the industrial arts and general culture will, I have no doubt, proportionately advance; and in the same ratio with increased facilities placed in their hands we may confidently expect to see Italy's enthusiastic and ingenious physicians add new glory to our science and art.

2255 East 55th Street.

The Work of the Division of Tuberculosis of the Cleveland Health Department

By R. H. BISHOP, M. D., Secretary of the Anti-Tuberculosis League of Cleveland, Director of the Division of Tuberculosis of the Department of Health of Cleveland.

June 1, 1907, may rightly be said to mark the beginning of the Division of Tuberculosis under the Health Department of the City of Cleveland, for on that date the notification and registra-

Presented at the meeting of the Academy of Medicine of Cleveland, held Friday, June 21, 1912.

tion of all cases of tuberculosis was made compulsory. For a period of three and one-half years the work of the department consisted merely in keeping a card catalog of the cases reported by private physicians, the City Bacteriological Laboratory and the one tuberculosis dispensary then in operation. It was not until the fall of 1910 that sufficient funds were voted by the City Council to enable the establishment of a separate division, whose whole duty should be the development of tuberculosis work.

With the establishment of this division, with its director and an office force, and the subsequent development of three tuberculosis dispensaries with nurses and paid physicians, a big beginning has been made towards the centering of all of the tuberculosis work of the city in the Health Department. In no other city in the United States is the tuberculosis work so nearly centralized in the health department as it is in Cleveland.

The work up to the present time has been mainly in checking up and sifting out all the dead cases and out-of-town cases from the files, so that an active file, giving only the known cases in Cleveland at the present time, may be had. As a help in this work a city census has been taken in which blanks were sent to all physicians and hospitals in the city, asking for a report of cases under their care. At the present time the department has a record of 4,548 known living cases. Of these cases 1,374 are at the present time under the care and supervision of the private physicians of the city; 1,761 are under the care and supervision of the tuberculosis dispensaries; the balance, 1,413 cases, are lost and are, so far as we can find out, without care or supervision of any kind.

When a case is reported by a private physician, by postal card, telephone or laboratory opinion, an acknowledgment of the receipt of that report is always made, and with this acknowledgment literature is sent to be given to the patient, and a return card, with the name and address of the patient on it, to be returned to the department when the case leaves the physician's care.

On all report cards and sputum blanks is the statement that "All cases of tuberculosis reported to the Department of Health will be visited by a nurse from this department unless otherwise requested by the physician." This puts the department on the offensive, rather than on the defensive, in the handling of cases. In case, however, the physician has had no opportunity to

express his disapproval of a nurse calling, as would occur when the case is reported over the telephone, his permission is asked. With very few exceptions, the physicians are glad to have a nurse call, and every effort is made to cooperate with the physician in the handling of the case.

One feature of the work which has met with the very decided approval of the physicians, is the sending of a nurse to the home, when a tuberculosis patient has died, to assist and instruct the family in the disinfection and renovation of the home. A municipal fumigation plant is badly needed to aid in this work.

All cases of tuberculosis discovered in the general dispensaries in the city are referred to the tuberculosis dispensary of the district in which the patient lives, and the department is notified; the dispensary, in turn, is notified and a nurse is sent to the home.

Since the first of January, 1912, the Division of Tuberculosis has established what we call "The Hospital Admission Bureau." By an arrangement with the Superintendent of the City Hospital, and the Director of Charities and Corrections of the City, it was agreed that the placing of all cases of tuberculosis in the city institutions should be left entirely with the Division of Tuberculosis. Through our nurses and previous records of all cases we were in a position to judge as to the proper placing of a case, and where one could not be sent to the hospital or sanatorium we were in position to make it possible to handle the case at home. Physicians desiring cases placed in Warrensville or City Hospital will therefore notify the Division of Tuberculosis and the case will be placed, as soon as possible, and in the institution best suited to the care of each particular case.

Factories, department stores, and business houses are coming to make use of the department by referring cases to the dispensaries for examination and diagnosis, and the evident willingness on the part of the management to give financial assistance in the care of these cases is a most hopeful sign and a field for great endeavor.

The educational work up to the present time is limited, on account of funds, but it is hoped that this end of the work can be developed a very great deal. Tuberculosis and bad housing go hand in hand, and the establishment of a Tenement House Department under the Board of Health has aided greatly in increasing the thoroughness and effectiveness of our work.

The Board of Health, on the recommendation of the Division of Tuberculosis, has recently ordered the forcible detention in the City Hospital of an unruly case. Such action must, necessarily, be taken with caution at this time, but it marks the beginning of the development of a phase of our work which will be far reaching in our end results.

The plan for the establishment and development of the dispensary system is one of the most important parts of the Cleveland plan for the relief and control of tuberculosis. Since the municipality has come to the rescue and provided funds for the support of the work, this particular feature of the work has developed rapidly, and three new dispensaries have been opened during the past year. The district plan is being developed and the city has been carefully divided into four districts, with a dispensary located in each one. Cases are only treated at the dispensary to which they belong. This plan prevents cases wandering from one clinic to another. It enables the nursing force to do more intensive work in each district, and the value of the dispensary from an educational standpoint is much enhanced, because the people come to feel that the dispensary with its corps of willing workers really belongs to them, and they depend upon it more than they did when there was but one central dispensary.

The functions of the dispensary may be said to be: (1) To provide a place where all classes may come and be examined, and a diagnosis made. (2) To provide medical treatment for those who are too poor to afford a private physician. (3) To provide supervision of cases in their homes, and through co-operation with other charitable organizations work out the problem of the home care of the cases which cannot go to a hospital or sanatorium. (4) To act as guardian of the health of the inmates of a home in which there has been tuberculosis. (5) To serve as a clearing house for sanatorium and hospital. (6) To educate the general public..

Only those who are in direct contact with all phases of the work can realize how difficult it is to keep the dispensary work up to the highest point of efficiency. The paying of physicians for their time in the clinics has been a big factor in improving the class of work done, and has enabled us to secure the services of men who are competent and interested in the work. A weekly meeting of each separate dispensary force is held, and each case on the active list is carefully considered and planned for. In

addition, a weekly meeting of the entire nursing force is held, and after a series of informal talks on tuberculosis, the work of allied organizations is studied; and speakers from the Associated Charities, the Department of Health, the Settlement Houses, and the many other social organizations, have been the means of broadening the views of our nurses and have been instrumental in improving the character of the work done.

There is too great a tendency on the part of the nurse to fall into a rut as the result of the necessary routine. In the rush of the clinic work it is impossible for the physician to consider every phase of the home life of his patients which may have a bearing upon the handling of them, and heretofore the nurse has not been made to feel that she, more than anyone else, is responsible for the handling of the cases. We are holding our nurses responsible for the handling of every individual case which comes to our clinics. By thus making the nurse responsible, the interest in her work is increased and much better results are obtained. If the problem presented is one that will take more time and energy than the busy dispensary nurse can give, then it is referred to the Special Case Committee.

During the year July, 1910, to July, 1911, the ten nurses then doing tuberculosis work made 29,552 calls. But figures alone are misleading as to the actual amount of constructive work that is being done. A careful study of the character of the work being done is now being made, and in another year we will be in a position to present figures which will show definite, tangible results for each visit.

In addition to the following of the cases that are termed "dispensary cases," all cases reported to the Board of Health by private physicians or the City Bacteriological Laboratory are visited, unless the physician requests that no call be made. Homes, where a death from tuberculosis has occurred, are immediately visited, with the consent of the attending physician, and the family carefully instructed in regard to the disinfection, and a quiet search made for possible new cases.

All dispensary families are visited at intervals of from two to three months over a period of two years after a death from tuberculosis, and the sociological history is not complete until every member of the family has a dispensary number after his name, showing that he has been examined.

The value of the dispensary as a clearing house for the hospital and sanitorium is unquestioned. At the present time no case can be admitted to the sanitorium unless it is first examined by the dispensary and found to be a suitable case.

As in every large city, we have difficulty in obtaining hospital accommodations for our advanced cases. One thing is certain and that is, that the accommodations and care given this class of case must be improved in order to insure our cases remaining there after they have once been admitted. The large percentage of our ambulatory advanced cases would gladly spend their time in a hospital, if conditions were attractive, and they felt that something was being done for them.

The value of the dispensary, from an educational standpoint, is hard to estimate. The following figures, showing the number of cases examined and under the care of the dispensaries, will give some idea of the educational work being done:

Year, July, 1910, to July, 1911:

Total number of new cases.....	1,807
Total number of individual cases.....	2,312
Total clinical attendance	6,832

Oral Sepsis with Special Reference to the Antiseptic Properties of Tobacco

By WILLIAM D. FULLERTON, Ph. B., M. D., Cleveland

Of late the attention of the profession has frequently been directed toward the condition of the mouth. The condition of the pharyngeal tonsils has seemingly claimed most of this attention. These organs, as portals of entry for a multitude of infections, have recently been so extensively discussed that there is no need to reiterate here. It may be assumed though, that any means taken to cleanse the anterior portion of the mouth also cleanses the pharynx directly, and indirectly, by preventing infection of the posterior part by those organisms which are eliminated from the anterior part.

The condition to which I desire to call special attention is that of the teeth and their contiguous structures.

Hunter, of the London Fever Hospital, on his recent visit to Baltimore, commented extensively on the prominence of pyorrhea alveolaris in the patients of the free wards of the Johns Hopkins Hospital, and stated that it was seemingly much

more common here than in England. Indeed the condition is not limited to the free patients and one has only to carefully examine the teeth of a number of patients of the upper classes, or to ask a well trained dentist, to be surprised at the prevalence of the condition.

The infected condition of the gums, gingivitis marginalis, is often mistaken for pyorrhea if not carefully examined. Pyorrhea alveolaris or Riggs' disease, probably the most intractable of the common oral infections, is a chronic suppurative inflammation of the periosteum, with more or less severe inflammation and retraction of the gums and necrosis of the alveolar processes of the diseased teeth. Riggs, who first described the condition, held that it was caused by a direct extension upward between the roots of the teeth and the gums, while Pedley, Sutton and others, hold it to be a constitutional disturbance. If we accept the most probable theory, that of Riggs, it is very evident that we will find the most pyorrhea, gingivitis, carious teeth, etc., among those whose mouths are most uncleanly.

Tartar, around which septic processes frequently originate, and, as Hunter emphasized, ill fitting crowns and bridge work, are of the greatest etiological importance. Many local and widespread pathological conditions may arise even from the well kept mouth, and in those whose mouths lack attention these possibilities are greatly increased. Some idea of these many and various conditions may be gained from a brief summary of diseases that may be caused by pathogenic bacteria through the mouth:

1. Infections, caused by a break in the continuity of the mucous membranes of the mouth and pharynx, brought about by mechanical injuries and leading to local or general disturbances, as abscess, caries, septicemia, pyemia, meningitis, osteomyelitis and syphilis.

2. Infections through gangrenous tooth pulps, leading usually to local abscess, but may cause septicemia, pyemia, neuralgias, otitis and diseases of the eye such as ocular spasm, strabismus, ptosis, myosis, retinitis, etc.

3. Disturbances from absorption of toxins. So long as carbohydrates and proteids are mixed, the oral bacteria do not attack the latter, or only very slightly so. But when the carbohydrates are exhausted, the proteids, as met with in carious teeth, stomatitis, gangrenous pulps, retained food particles or in

the intestinal tract, are decomposed and hydrogen sulphide, ammonia, carbon dioxide, indol, skatol and other decomposition products are liberated, which on absorption lead to anorexia, obscure and well known digestive disturbances, nervous conditions, etc.

4. Pulmonary conditions, caused by inspiration of bacteria alone or on particles of mucus, food stuffs or tartar; such as aspiration pneumonia, gangrene of the lung, putrid bronchitis, etc. Secondary infections of tuberculous cavities, possibly occasionally a primary infection.

5. Gastrointestinal disturbances, by continued swallowing of bacteria and their products. Excessive fermentation with the production of abnormal amounts of gas, chronic gastritis, absorption of toxins with further gastrointestinal disturbances, tuberculosis of the intestinal tract and elsewhere *via* the gut, typhoid, dysentery, etc.

When the mouth bacteria will liberate 250 Ccm. carbon dioxide and hydrogen from 500 Ccm. of a beef extract sugar solution, it is readily seen how they, when swallowed and not meeting sufficient acidity in the stomach to kill them, may, on being passed into the alkaline intestinal contents, account for a large percentage of flatulence.

6. Points of attack in the soft tissues of the mouth, by lack of resistance, leading to gingivitis marginalis, abscess in consequence of impeded irruption of wisdom teeth, pyorrhea alveolaris, stomatomycosis, mycosis, stomatocace, thrush and all inflammations of the gums accompanied by suppuration and abscess formation.

Aside from the many local and remote conditions mentioned above, is the caries of the teeth themselves, which is due directly to the bacteria of the mouth and the conditions produced by them.

The bacteria of the mouth may be divided into those which cannot be cultivated, and those which grow on artificial media. Of the first group, most observers have constantly found six strictly parasitic organisms in every human mouth, viz: *Leptothrix innominata*; *Bacillus buccalis maximus*; *Leptothrix buccalis maximus*; *Iodococcus vaginatus*; *Spirillum sputigenum*; *Spirochaeta dentium*.

In the second group may be mentioned the common air bacteria; those found in the foodstuffs; *B. typhosus*; *Diplococcus*

lanceolatus, which Netter has found in 20 per cent of all healthy mouths; *Streptococcus*; *Staphylococcus albus* and *aureus*; *B. influenzae*; *Micrococcus tetragenus*; and *B. tuberculosis*. Something over 100 organisms have been described by one investigator or another, so that the oral flora is extremely rich and varied. Were it not for the struggle for existence, which applies equally well to bacteria as to the higher forms of life, we would expect to find a much larger constant oral flora.

The pure saliva contains only about 0.15 per cent of organic matter and is mildly antiseptic, so in itself is not a suitable medium for bacterial growth. But it may form a perfect medium when combined with other constant and frequent constituents, as buccal mucus; dead epithelium; dental tissues softened by acids; exposed pulps; accumulations of food particles, which form the chief source of bacterial nutrition; and exudations of the gums caused by irritation of tartar, etc., and said to be essential to the growth of *Spirochaeta dentium* and *Spirillum sputigenum*.

Normal saliva contains calcium phosphates and carbonates held in solution by carbonic acid, which is liberated on reaching the mouth, and the above salts are precipitated, forming the so-called tartar. This, besides being an irritant to the gums, forms with the teeth many protected and difficultly accessible places for the lodgement of food particles and bacteria. Since the greater or lesser deposition of tartar is normal in every mouth, it is singular that, through these and other mechanical injuries received by the mucosa, subsequent infections are not more frequent. The gums though seem singularly unsusceptible to infection. The dentine or tooth cartilage, however, which by virtue of its rich vascular supply offers an admirable substance for bacterial growth, is frequently infected and is a constant source of secondary infections.

The exciting cause of dental decay is a chemico-parasitical one. The hard parts of the teeth are first decalcified by the acids of the mouth, principally acetic, and the remaining soft parts are subsequently destroyed by the various bacteria. Therefore, any condition which leads to the presence of acid in the mouth, as ingestion and retention of foodstuffs, principally carbohydrates which subsequently decompose, medicines, acids, or an acid saliva, which is said to be frequently met with in gout, gastro-

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EDITORIAL

Sensitization and Infection

Theobald Smith was the first to note the occurrence of that peculiar phenomenon which has since been termed anaphylaxis. In the course of laboratory investigations undertaken for quite different purposes he found that animals became hypersusceptible to horse serum, that the second injection of such serum, harmless and innocuous upon the first administration, led to severe symptoms and death. The further experimental work which followed soon showed that the greatest diversity of proteid substances, absolutely harmless when taken into the intestine,

have this property of producing harmful effects when their introduction by injection is repeated seven to ten days after a first injection. It was soon recognized that the untoward results which may follow the injection of antitoxic sera or of solutions of bacterial proteids into human beings were simply manifestations of the phenomenon of anaphylaxis. And the hypersusceptibility which certain individuals have toward certain articles of diet was placed in the same category. In these individuals proteids, which in normal persons undergo digestion and assimilation with only beneficial results, produce the same baneful effects when taken into the intestine as do proteid substances in general when introduced directly into the body by the unnatural method of injection. The primary condition in such susceptible persons would seem to be an increased permeability of the gastrointestinal mucosa, permitting the absorption of highly complex, undigested proteids, rather than the simpler compounds which the process of digestion normally prepares for assimilation. The urticaria which follows the eating of strawberries or shell-fish is, therefore, a manifestation of the same phenomenon which leads to the severe illness or death of a guinea pig after a second injection of egg albumin. In either case there is introduced directly into the body fluids and tissues a complex proteid to which the fluids and tissues are not accustomed and which must be taken care of by the latter. The mechanism of anaphylaxis is still a matter of controversy; several theories, none of which has received general acceptance, have been propounded.

In 1907 Vaughan and Wheeler showed that by chemical cleavage proteids of the most diverse kinds can be split into fragments, of which one is nontoxic and the other toxic upon injection. This work suggested to them an explanation of the untoward effects which follow the second injection of a foreign proteid harmless upon first injection. By the parenteral introduction of a proteid a complex substance is brought in contact with the cells and fluids, an unusual compound of which the body cells must take care. They do this by slowly developing a proteolytic ferment which splits up the foreign proteid into its toxic and nontoxic fragments, but so gradually that no symptoms are produced by the former. The excess of the enzyme is stored in the body as a zymogen, which becomes activated when a second dose of proteid is introduced. Now the protolysis proceeds rapidly because of the amount of enzyme present and toxic

substances are immediately liberated in quantities sufficient to produce symptoms of intoxication.

The theory of Vaughan and Wheeler offers a relatively simple solution of the causation of serum sickness and of strawberry urticaria. These examples belong to two groups of conditions in which the introduction of a foreign proteid has a harmful effect. It is evident that one of the commonest forms of introduction into the body of a foreign proteid is bacterial infection, and here the original dosage may increase many fold because the bacteria are capable of multiplication. V. C. Vaughan, Jr. (*International Clinics, IV, 21st Series, 131*), has recently discussed the relation of the phenomena outlined above to the infectious diseases, and concludes that, whereas the sensitization which follows the introduction of a proteid by injection or because of abnormal permeability of the intestinal mucosa leads to harmful effects, in the case of bacterial proteids the process is a beneficial one. When pathogenic bacteria enter the body and multiply, there results the condition which is termed infection. The bacteria, being foreign proteid, stimulate the cells of the body to the formation of a proteolytic enzyme, which splits the bacterial proteid and liberates toxic substances. Toxic material is produced in amounts sufficient to produce symptoms, and these latter are the clinical evidences of the infection. Here it is the first introduction of the proteid which leads to untoward effects, but only because the proteid is capable of increasing its amount by bacterial multiplication. After recovery the zymogen is stored within the body, to be activated when bacteria of the same species again enter the body. By the first infection the cells of the body have been sensitized. The number of bacteria which enter the body at any one time is small and they are killed by the activated enzyme before they can multiply to such a degree that the splitting of their proteid produces toxic substances in amounts sufficient to cause intoxication. In other words, the body has been immunized, and as a phenomenon of lytic immunity sensitization to bacterial proteids is a beneficial process. This application of the sensitization doctrine rather simplifies our ideas of the immunity which occurs in those infectious diseases due to bacteria which do not produce diffusible exotoxins; and because it is relatively simple it is a relief to the mind rendered distraught by the cabalistic mystery of the sidechain hypothesis.

Governmental Health Insurance

The British Medical Association, at its recent session in Liverpool, had under discussion the attitude of the medical profession towards the National Insurance Act, which is already partly in operation and will soon be entirely so. There are several particulars with regard to the act itself and the doctors' opposition to it which must be of great interest to the profession in Cleveland, especially since there can be little doubt that their legislatures will become interested in similar schemes of national health insurance, and this, perhaps, at no very distant date. Let it be hoped, when such does happen, that the profession in Cleveland will be in so strong a position, or if the bill should be a national one that the profession throughout the states will be in such a position of preparedness, that a situation like that which has developed in Britain will be impossible. For all the trouble has really been due to the unpreparedness of the profession for such a scheme.

The scheme in general is this: All persons with less than a certain income are compelled by law to contribute so much a week, in the shape of stamps, towards an insurance fund managed by the government. Their employers must pay a part of the contributions. When the insured person becomes sick he is entitled to call on the services of a doctor who is paid for his work out of the insurance fund. The doctor's remuneration is on the *per capita basis*; so much a year per insured person. The scheme is therefore exactly like that of the benevolent societies and, in Britain, the machinery of these has been employed in working out the details of collection and in other ways. But it is just exactly in this connection that the bill is unsatisfactory to the medical profession for it is based on the established customs of these societies without *any regard being taken of the attitude of the medical profession*. This profession has been regarded by the unscrupulous promoters of the bill as a business nonentity, as a useful and necessary tool but one which can be worked just as it is directed. Of course the result has been that the whole bill is extremely unsatisfactory from the practitioner's standpoint; he is to be paid only a little over a dollar per insured person per annum; he is to have practically no say in the management of the scheme; he is to be at the beck and call of insured persons whenever they see fit; he is to have but

scant allowance for extra services; no inducements are held out to him in the way of promotion and so on; all of which are the natural outcome of a scheme for medical practice framed by politicians and fraternity societies.

But the question which must interest us most is how all this could have been avoided. In one way only, by the profession's being prepared, by its having definite ideas of its own so that, when approached by the politicians, it could state definitely upon what terms and under what arrangements it would be willing to undertake such work. Unpreparedness of the profession has really been the cause of all the trouble in Britain. Everyone, the doctors included, are agreed that a properly controlled scheme of health insurance is desirable but for such to succeed the medical profession must be enthusiastic and this they can never be if their services are to be dictated to them by laymen and their work rewarded at the lowest possible rate. How then has the medical profession been unprepared? Simply in this, that it has taken no definite position with regard to fraternity insurance; it has allowed this to drift so that, as we all know, not only the remuneration but also the control of the doctor in fraternity management is extremely unsatisfactory. The Government, in framing its bill, finding this to be the case, of course disregards the profession and takes as its working basis the established customs of the fraternities as represented to them by these bodies.

This preparedness of the profession must consist, however, not in mere literary discussion and debate but in action. Recognizing that some scheme of health insurance must inevitably be developed in Cleveland, it seems time now to consider in what way the profession can best prepare itself so that it can look after its own interests and at the same time be instrumental in evolving a really good system of health insurance.

The New City Hospital

One of the most important projects that the City has in contemplation is the rebuilding of its hospital. That Cleveland is in need of increased and better municipal hospital facilities no one will deny. The present plant, poor from its very beginning, has not kept pace with the City's growth and has become poorer with each year of its existence. The money to be spent in

rebuilding, no matter how large the sum, will, if properly spent, yield larger and more immediate returns than anything that the City could undertake. The proposed plans are said to call for an ultimate expenditure of \$2,000,000. Such a sum ought to give Cleveland not only a hospital with the facilities for properly caring for its sick, but an institution for the investigation of disease and the advancement of medicine, for the betterment of humanity. That the hospital may fulfill the broadest aims of a hospital more is necessary than the mere piling of one brick upon another until \$2,000,000 shall have been expended. To guide us aright in our group plan we seek the advice of a commission of experts; to obtain plans for our new city hall we select the best offered in a competition open to the foremost architects. Have we proceeded as wisely or as well in the planning of our new hospital? The number of architects who can draw up plans and specifications for a city hall is legion; the number who, without the advice of experts, can do the same important work for a hospital is exceedingly limited. Who prepares the plans for the new hospital is a matter of small moment; who passes upon and approves them after they are drawn is of the utmost importance, not only to the medical profession but to every citizen of Cleveland.

If the daily papers are to be believed the bids received the latter part of July, covering a proposed expenditure of some two hundred thousand dollars for the general service buildings, had to be thrown out because of a lack of attention to details in the drawing up of the specifications. We admit that we take all that appears in the lay press *cum grano salo*; and in the case of anything relating to medical matters the grain of pure sodium chlorid becomes a very large chunk of rock-salt. But it does seem fairly well established that the original plans for the first construction work of the hospital were found faulty by a committee of the Chamber of Commerce, and it has never been officially announced that the revised plans have been approved by any body of experts. Furthermore, the fact that there is not included among the very first structures to be built a general laboratory building, which would give to the patients in the present wards the benefits of scientific investigation, might be considered either an oversight or a faulty conception of what a hospital should be. Before we go ahead let's be sure we're right—the present hospital is example enough of what a municipal

hospital should not be. The inadequacy of the present plant as a hotel for the sick must be apparent even to the layman; as a laboratory where disease may be investigated, where medical knowledge may be advanced, it leaves even more to be desired. Properly built in the beginning it should have subserved both purposes from the time of its completion and it should still be good for an indefinite number of future years, requiring only additions to make it keep pace with the City's growth and with increased medical knowledge. In this country there are several hospitals, the Johns Hopkins Hospital being an example, which were begun or built before the Cleveland City Hospital; the latter was out-of-date from the beginning, the former still serve as models for modern institutions. Cleveland's new city hospital should be built, not for a day, but forever, and it should be more than a place where sick people can be kept and fed, and cured or permitted to die. That it may help in the proper advancement of humanity as well as in the care of the ill, it should be planned and constructed under the advice, not only of those familiar with the fashioning of buildings out of materials and with the caring for the sick, but also of those, and their number is very small, more than familiar with modern hospital construction.

Meeting of the American Association for Study and Prevention of Infant Mortality

Following the National Conference on Charities and Corrections in June, Cleveland has had two other opportunities of demonstrating its ability to care for large gatherings of strangers. The next national gathering, the American Association for Study and Prevention of Infant Mortality, which holds its third annual session from October 2 to 5 inclusive, comes, however, not because of any reputation Cleveland may have or may aspire to have as a convention city, but as a measure of recognition of the good work done in this city toward the study and prevention of infant mortality by the Babies' Dispensary and Hospital, the Board of Health, the Children's Fresh Air Camp and such other organizations as concern themselves with child welfare. The meeting is one which promises to be of great interest and importance, not only to those specialists throughout the land who are more particularly engaged in the study and prevention of infant

mortality, but to the medical profession and the laity of Cleveland in general as well.

The provisional program is as follows: Before the Committee on Birth Registration the following program will be presented: (1), "The Utilization of Birth Records in the Practical Administration of Bureaus of Child Labor, Tenement House Inspection, Compulsory School Attendance, Infant Hygiene and Similar Agencies," by Doctor William H. Guilfooy, Registrar of Records, Department of Health, New York City. (2), "The Size of Families in Relation to Nationality, Occupation and Economic Conditions, and the Relative Occurrence of Stillbirths in the Various Classes of Population," by Doctor William H. Davis, Registrar of Vital Statistics, Boston. (3), "The Legal Importance of Birth Registration," by Doctor William C. Woodward, Health Officer of the District of Columbia. (4), "The Importance of a Standard Certificate of Birth," by Doctor F. L. Watkins, Consulting Statistician, Columbus. (5), "Report and Recommendations of the Committee on Birth Registration," by the Chairman, Doctor Wilmer R. Batt, Registrar of Vital Statistics, State Department of Health of Pennsylvania. The Committee on the Educational Prevention of Infant Mortality will hold its second conference on Continuation Schools of Home Making, discussing more particularly the question as to whether school boards should create Continuation Schools of Home Making where girls or women with grammar school education can receive, even several years after leaving school, free instruction in housewifery, care of children and related matters. The second conference of the Committee on Eugenics will have as its general topic, "The Eugenical Aspect of Infant Mortality: The Significance of Heredity," and as special topics will discuss (1), "Infant Mortality in Relation to the Hereditary Effects of (a) Tuberculosis, (b) Venereal Disease, (c) Mental Deficiency, (d) Constitutional Weakness, (e) Occupational Disease;" (2), "The Proper Attitude of the Medical Profession;" (3), "The Proper Attitude of the Church and Charitable Institutions." The Committee on Housing in Relation to Infant Mortality will detail the results of its study of the relation between environmental conditions and infant diarrhoea, with special reference to the effect of excessive indoor temperature due to poor housing. The program of the Committee on Midwifery will consist of: (1), "A study of substitute agencies, including maternity hospitals, the out-

patient services of such hospitals, the work of mothers' relief societies, prenatal work, the visiting obstetrical nurse and allied charities." (2) A discussion of the following topics: "a, Ideal care of a patient in confinement; maximum and minimum requirement. Does the average midwife meet even the minimum requirement? b, A comparison of the care given by the above mentioned agencies and that given by the average midwife. c, Is the percentage of patients attended by midwives increasing or diminishing? d, Substitute agencies as a part of general welfare work of great corporations. e, Substitute agencies as a part of general welfare work in mining districts." The Committee on Nursing and Social Work has planned to study work among mothers and infants as it has been organized in certain cities, to compare these methods and their results, to determine the extent and character of the work which is being done throughout the country, and if possible to arrive at some standards of infant welfare nursing which will be generally serviceable. The Committee on Progress in Preventive Work will consider questions of infant feeding according to the following schema: "I. Maternal Nursing: (a) Can the number of mothers who are able to nurse their infants be increased? (b) If so, by what means? (c) Which of these means are applicable in this country? II. Pasteurization, Sterilization and Boiling of Milk: (a) What is meant by adequate pasteurization, sterilization, boiling? (b) Is the heating of milk to be used as food for infants in order to kill organisms contained in it to be considered today to be productive of greater good or greater harm, in the prevention of illness and death among infants, all conditions and circumstances being considered? (c) Under what circumstances, then, is the heating of milk, to be used as a food for infants, to be recommended? (d) Is the heating of milk, to be used as food for infants, to be carried out before it is sent to the home, or is it better to send it raw and have the parent heat it in the home? (e) What method or methods of heating are to be recommended?"

For the evening sessions a series of addresses of general, popular interest is planned. On the evening of the opening day, October 2, there will be the invocation by Bishop Leonard, the address of welcome by the Mayor, Honorable Newton D. Baker, the address of the President of the Association, Doctor Cressy L. Wilbur of Washington, and an address by Miss Julia Lathrop,

Director of the recently created Federal Children's Bureau. On the evening of October 3, Doctor Jacques Bertillon of Paris will deliver an address upon "Puericulture Aseptique." On the evening of October 4 there will be an address by Doctor C. Hampson Jones of Baltimore on "The Prevention of Municipal Infant Mortality," one by Doctor J. N. Hurty of Indianapolis on "The Prevention of Rural Infant Mortality," and one by the President-elect, Doctor L. Emmett Holt of New York, upon "The Importance of Infants' Hospitals in the Prevention of Infant Mortality." Especially noteworthy is the fact that that portion of the exhibition of the Fifteenth International Congress on Hygiene and Demography relating to child hygiene and infant mortality will be brought to Cleveland for the meeting of the Association; this will include the model of the Babies' Dispensary, prepared through the liberality of Mr. J. H. Wade.

The headquarters of the Association will be the Hollenden Hotel, and the place of meetings will be the auditorium of the Engineers' Building. Citizens of Cleveland who are directors of the Association are Messrs. Arthur D. Baldwin and Charles A. Otis and Doctors C. E. Ford and H. J. Gerstenberger. Mr. Gardner Abbott is chairman of the local committee on arrangements. The profession of Cleveland can further the work of the Association by attendance at the meetings and by taking out membership, which costs three dollars annually; checks for the latter purpose should be sent to the Treasurer, Mr. Austin McLanahan, Medical and Chirurgical Faculty Building, 1211 Cathedral Street, Baltimore.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Camphor: In the *Medical Record* for April 20, August Seibert reports concerning camphor and pneumococci. Blood culture work of the last decade has shown that a successful treatment of pneumococcic pneumonia must consist in either binding the toxin by a serum or in destroying the vitality of the organisms, directly or indirectly, by chemotherapy. The first attempt to reduce the vitality of pneumococci in the blood of a patient by introducing large doses of camphor was made by Seibert in September, 1906, in the case of a young woman on the third day after the initial chill, with the symptoms of a severe toxemia, and involvement of both lower lobes. An extended experience with the action of large doses of camphoric acid in influenzal affections suggested the use of large doses of camphor in this desperate case, and 12 Ccm (instead of 1 or 2 Ccm used till then for stimulating purposes) of the 20 per cent camphorated oil were injected hypodermically every twelve hours, resulting in *gradual* improvement and recovery by the fourth day without a crisis. The alveolar exudate in the lung, however, did

not disappear until the tenth day after the chill. In the following twenty cases of pneumococcic pneumonia these camphor injections invariably reduced the toxemia gradually until practically normal conditions were reached three or four days after the first injection, while the alveolar exudate remained to be absorbed later on. This phenomenon and the *absence of a crisis* were noted in every case. In these twenty-one cases, 12 Ccm. of a 20 per cent camphorated oil were injected every twelve hours in adults, and 6 Ccm. in children (the youngest being four years of age), irrespective of the size and weight of the patient, the intensity of the toxemia and the extent of the local process. In four of the next sixteen cases, the limitations of this treatment were observed. In two cases a pneumococcic nephritis developed, yielding promptly to appropriate doses of urotropin, while the camphor was continued, and resulting in speedy recovery. In two cases of severe pleuropneumonia, the camphor reduced the general toxemia markedly, but did not prevent pus accumulation in the pleural cavity, necessitating rib resection; both patients recovered. This proves that the camphor brought into the blood cannot prevent the as yet living organisms, constantly entering the blood current from the affected alveoli, from colonizing in the renal and pleural tissues. He believes the following facts are established in human and animal pneumococcic infections: (1), That 10 Ccm. of a 30 per cent camphorated oil (equal to 36 grains of pure camphor) injected hypodermically to 100 pounds of human body weight every eight to twelve hours do not produce symptoms of poisoning, in fact are harmless. (2), That much larger doses (to the body weight) in rabbits are equally well borne. (3), That these quantities of camphor materially assist in overcoming pneumococcic toxemia. (4), That the earlier this treatment is resorted to the better the results. The injections are best made along the outer thigh. A Luer syringe of 10 or 20 Ccm. capacity (without rubber washer) must be used. The oil must be sterilized in a large-mouthed bottle with loosely fitting stopper in a boiling water bath, and drawn from it (not poured) into the sterilized syringe. The point of injection is best made sterile by a few drops of tincture of iodine.

Quinin: The June number of the *Therapeutic Gazette* calls attention to the fact that intramuscular injections of quinin were being largely employed in India in malarial conditions, the chief advantages claimed being that absorption is sure, the efficient dose smaller than that by the mouth, and the drug action much more rapid. Recently the bimuriate of quinin and urea has been very largely employed as a local application, and still more commonly as a hypodermic injection for producing local anesthesia, the claim being that it has no ill effects nor the dangers of cocaine. A number of clinical observers have reported instances of tetanus developing after major or minor operations, in cases in which no opportunity for infection by another cause than quinin could be discovered. These seemingly inexplicable infections with the bacillus have, however, been explained, in part at least, by the discovery that tetanus spores are sometimes found in the healthy alimentary canal of man, and if there occurs a solution of continuity in the mucous membrane of the intestine autoinfection of a traumatic or surgical wound may result. Possibly this explains the development of tetanus in some cases operated on for hemorrhoids, and it certainly has an interesting bearing upon the safety and value of quinin when given by the hypodermic needle, either for the purpose of producing local anesthesia or to overcome the malarial parasite. Recently Semple points out a fact, probably not generally known, to the effect that if a solution of quinin is boiled, it undergoes deleterious change in a very short time, so that the therapeutic efficiency of quinin is diminished by this method of sterilization. He also believes, and is probably correct, that boiling for from one to three minutes is entirely inadequate to sterilize quinin so far as tetanus spores are concerned, since, as is well known, Theobald Smith has shown that

the spores of some strains of tetanus resist boiling for so long as from forty to seventy minutes. It seems to be pretty well proved that quinin produces some change in the tissues which renders them a singularly favorable site for the growth of the tetanus bacillus. It is not the damage to the tissues by the injection, because a hypodermic injection of morphin does not produce similar results. The point is therefore not so much that the quinin solution actually contains tetanus bacilli, but rather that the quinin predisposes to infection if the germ is present in the body. Concerning the question as to whether the physician should resort to quinin by the hypodermic needle in malarial fever, it is advised to avoid this plan unless the need for the immediate action of quinin is pressing. Sir David Semple's position probably best represents that which should generally be held: "I should certainly not recommend anyone to withhold a hypodermic injection of quinin from any case where it is indicated, but on the other hand should be very sorry to recommend this method of quinin as a routine measure in all cases. I should confine myself to the exceptional cases in which quinin by this method is indicated, and these I should safeguard by a dose of tetanus antitoxin, especially in those localities of tropical countries where tetanus frequently occurs."

Epidemic Poliomyelitis: Simon Flexner in the *International Clinics* (Vol. II, 22nd Series) treats of the present status of epidemic poliomyelitis. While the disease is less prevalent than it was three or four years ago, it has still to be controlled. While considerable knowledge has already been gained and this knowledge, fortunately, is now being so focussed that there is hope of employing effective measures of prevention, still we are not in possession of means that suffice to bring the disease under control in individual cases after it has once been established. As to its prevention, the measures to be used are similar to those practiced in diphtheria, scarlet fever and all diseases in which respiratory infection is paramount. As to isolation, the period for the disappearance of the infectious agent from the nasal and buccal secretions, while at present based upon imperfect data, would seem to be, as indicated by experience, three or four weeks. Although the virus of poliomyelitis is highly resistant, it is still subject to chemical destruction. Some of the destructive chemicals can be applied to the mucous membranes. Among them are hydrogen peroxide and menthol; but doubtless other similar substances are more or less effective. Whether they actually accomplish destruction of the virus on the mucous membrane, as they do in the test-tube, is not known; probably they are less efficient there. Too much faith should not be placed in them. He believes that chief reliance should be placed on cleanliness of the hands, face, etc., destruction of the discharges, and the removal of the dangers of dust accumulation after the sick has been removed from the room, and other common measures. Have advances been made looking towards the therapeutic control of the disease? We have learned that recovery from the disease is produced by immunity reactions, just as recovery from many of the infectious diseases is thus produced. But in epidemic poliomyelitis immunity principles can be demonstrated in the blood, where they persist for a long time. How long they persist nobody knows, but the duration is surely for years. Thus one attack is insurance against a second one. These immunity principles have not yet been successfully invoked to cure the developed disease or to prevent its onset after inoculation, when its use is deferred for twenty-four hours. In the therapeutic treatment of the disease it has been shown that hexamethylenamin or urotropin is readily secreted in the cerebrospinal fluid, and it has some power when administered to monkeys simultaneously with the inoculation, either to prolong the incubation period of the disease or actually to prevent its development altogether. The drug on the whole, however, is not very efficient. Its value is not great, and after paralysis has set in it has no power to alter its course. The suggestion may be entertained

of employing it early to reduce, possibly, the severity of the attack in human beings; but here the protean nature of the disease, at times mild, and at times severe, will make it difficult to decide upon its real value. It may further be thought of as a prophylactic, to be given to children who have been intimately exposed to the disease, but who show no signs of acquiring it. Here too, the degree of its action, if any at all is exerted, will be difficult to gauge, since multiple cases of infection are few and solitary cases are many.

Angina Pectoris: In the May number of *Merck's Archives*, Louis Fau-geres Bishop considers the theory and treatment of angina pectoris. He believes that angina pectoris is always a cardiac pain and has its origin in the heart muscle. The fact that these attacks are precipitated by the slightest exertion is pretty sure evidence that the origin is in the heart muscle. We cannot relieve it by drugs to cover up the pain; that is simply begging the question. In order to cure the disease we must understand its nature, find out the cause and get at the removal of the cause. He sees no reason to say that the pain is in the coronary arteries in its origin, as he believes that all cardiac pain has its origin in the heart muscle. As to the cause of disease of the heart muscle in these chronic cases developing pain, he is firmly convinced that in nine cases out of ten it is some form of toxemia, and usually some toxemia of intestinal origin. The problem of treating angina pectoris is the problem of taking care of the heart muscle. If we can prove an intestinal putrefaction, we can continuously treat that with different methods. At the present he believes in a low proteid diet, outdoor exercise and the use of castor oil at regularly repeated intervals—the latter a most essential part of the treatment. It is important in cardiac pain to relieve the pains if we can, because unrelieved pain becomes habitual. If patients can go a good while without pain, they are less apt to have what is called the pain habit. The treatment of heart disease by physical means has not much reputation in these severe cases. It is not because the treatment is not proper, when suitably supervised, but it is because the cases are too bad. He believes that the fundamental cause of arteriosclerosis is the same as that of angina pectoris. And as a matter of clinical experience he knows that the existence of indican in the urine presents a condition that will eventually lead up to arteriosclerosis. He refers to intestinal putrefaction, but there are probably other elements that he has not been able to explain. He puts little stress upon the liver, while some observers blame the liver entirely.

Ignatia: Wm. M. Gregory, in the June number of the *Medical Summary*, considers ignatia the very best tonic we have, and medica will. He states that ignatia fills a place that cannot be filled by nux vomica or strychnin. Besides being a cerebrospinal stimulant, it has qualities as a nerve sedative and reconstructive which make it an exceedingly valuable remedy in all weak and excitable conditions of the nervous system. It should be used in many cases where the compound syrup of the hypophosphites is usually used, and also in many disturbed conditions of the female nervous system, where bromids and choral are generally employed. He reports cases in which its valuable tonic properties were shown and states that it is a remedy, or rather one of those peculiar vegetable remedies, that will not reveal their true curative principles to chemistry. It contains a large percentage of strychnin, but its field of action differs from that of nux vomica or strychnin. Its great value lies in the fact, which should be universally known, that it is the most powerful remedy we have to allay great nervous excitement, and at the same time give the patient permanent strength and improvement. He prefers ignatia, cinchona and dilute phosphoric acid to the hypophosphites, and he recommends it after any long and exhausting illness. It is

excellent in checking the night sweats of greatly exhausted patients. He also prefers the specific tinctures of ignatia and cinchona to the pharmacopial fluid extracts.

Paresis of the Bladder: Wm. F. Waugh, in the June number of the *Critic and Guide*, discusses the treatment of paresis of the bladder in advancing age. The urinary stream weakens to a feeble trickle, while the demands of the bladder for evacuation become frequent and imperative. Scarcely can one wait for the opportunity to satisfy the urgent impulse; and then, after the first quick gush, the ardor subsides and a tedious wait follows while the languid viscus slowly contracts. Leave a portion of the fluid as a residuum, and an increase of ardor and of debility is sure to follow. By and by one begins to be uncertain whether the bladder is really emptied, and if the patient is a doctor he feels tempted to insert a catheter and make sure. Again beware; the first introduction of the catheter is the last excuse for the sluggish bladder, and never again will it perform its expulsive function. Lessen the irritability of the bladder by excluding from the urine all adventitious irritants. Eschew spices, condiments, cresses, all dietary components containing volatile oils. Keep the alimentary canal clear, so as to prevent the presence of indican, skatol, *et id omne genus* elements that may be vicariously eliminated by the kidneys, but always under protest and at high cost in tightened vascular tension and its long train of ills. Above all avoid alcohol. Take time and call to the aid of the bladder all the abdominal muscles. We have two points for the therapeutic attack; the irritability of the trigonum vesicae and of the whole vesical mucosa; and the paresis of the vesical musculature, the detrusor. The irritability very slowly and surely subsides under arbutin, a centigram ($\frac{1}{2}$ grain) seven or eight times a day, and this priceless glucoside may be continued with impunity and benefit for an unlimited period, even for years. The detrusor may be energized by cantharadin, 1/15,000 grain not more than seven times a day and very rarely in larger doses. Get impatient of these little doses and you aggravate the malady by larger ones. By this medication, with suitable hygiene, the bladder may be kept in good, workable condition for years, the good effects gradually wearing out.

Thyroid Extract: Milton K. Meyers reports in the *Monthly Cyclo-pedia* for June a case of a woman who, healthy until she began taking thyroid extract to reduce her weight, became very nervous, lost fifteen pounds, and shortly after taking the drug developed, for the first time in her life a nocturnal convulsion, in the course of which she bit her tongue. During the past two years she has had only three or four hard convulsions, but has had several attacks of petit mal weekly since. It is unfortunate that the history does not state the exact dose of the gland extract used, nor the length of time of treatment. The patient bought the drug on her own responsibility at a drug store and took double the dose prescribed by the clerk. She first consulted her physician for tachycardia which had become apparent to her. She did not suffer her first epileptic attack until later, and at the consultation with the physician, herself attributed it to the taking of thyroid. The case is interesting from the fact that it corroborates Meyer's contention that anomalies in the quantity and quality of the thyroid secretion may so act upon the nervous system that an epileptic attack may be determined either directly or by a primary action or failure of action on other toxins. The case is also of interest in that it is a contribution to the toxicology of the thyroid gland. Despite the fact that the symptoms resulting from excessive thyroid medication are well known theoretically to physicians, surprisingly few cases are reported in the literature.

Review of the Progress of Medicine

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Acute Poliomyelitis or Infantile Paralysis

During the past seventy years acute poliomyelitis has been gradually separated from a mass of heterogeneous palsies and established as a clinical entity. In 1840 Heine, an orthopedic surgeon of Cannstadt in Germany, published a monograph on paralytic conditions of the lower extremities, the chief stress of his work being laid upon the surgical aspect of the disease, but there is a short, clear cut description of the onset and the acute stage. He suggested that the etiological factor was a sudden serous exudation in the spinal cord and gave a rough description of the spinal cord changes. Charcot in 1870 studied the pathology of poliomyelitis and declared a primary degeneration of the anterior horn cells to be the morbid process. In 1884 Strumpell pointed out the resemblance between certain cases of acute encephalitis with spastic paralysis in children and cases of poliomyelitis. In 1890 Medin, basing his studies upon the extensive Swedish epidemics, published the first good clinical account of poliomyelitis and his name is sometimes coupled with Heine's in association with the disease. Wickman, in Sweden, in 1905 called attention to the epidemiology of the disease and its pathology, and described for the first time the abortive types.

Experimental production of the disease in monkeys was first accomplished in 1909 by Landsteiner and Popper and a few months later by Flexner and Lewis and by Strauss in this country. That the disease could be transmitted from one monkey to another was shown by three different observers in different cities working independently in November, 1909. These were Flexner and Lewis in New York, Leiner and von Wiesner in Vienna, and Landsteiner and Levaditi in Paris. This was done by inoculating the brain of monkeys through a trephine opening with an emulsion of the spinal cord secured from a fatal case of poliomyelitis. The virus has also been found in the nasopharynx and in the tonsils and successful inoculations made with emulsions of these tissues.

There is now abundant evidence that the infecting agent belongs to the group of so-called filterable viruses. It is highly resistant, withstanding glycerinization for long periods and is not injured by 0.5 per cent carbolic acid. Freezing at -2.0 degrees to -4.0 degrees C. for forty days does not affect it materially. It is quite readily destroyed by hydrogen peroxide in 2 per cent solution, by menthol, by corrosive sublimate or by heating to 50.0 degrees C. In monkeys, one attack of the experimental disease prevents a second successful inoculation. Quite satisfactory results in the production of active immunity, induced by repeated amounts of attenuated virus, have been obtained, but these have not warranted the application of this procedure to man. The serum of recovered monkeys, and also the serum of human patients that have recovered from this disease, have been shown to contain a substance that is capable of neutralizing the virus in vitro.

Little is known as to the method of transmission of the disease. Undoubtedly a few cases are transmitted by direct contact, but the greater majority of cases can not be explained in that way. The latter could be more readily explained on the supposition that some insect was responsible. In a recent epidemic in Massachusetts, Brues made an extensive investigation of this point and concluded that there is a possibility that the ordinary biting stable fly, *Stomoxys calcitrans*, may be responsible for the spread of acute epidemic poliomyelitis. The sporadic occurrence of the cases, the seasonal distribution of the disease showing the largest incidence during the warmer months, when insects are most prevalent, the failure on the part of investigators to show that the disease spreads most where many children are in direct contact—these facts speak in favor of the disease being borne by insects. Furthermore,

in support of this contention is the knowledge of the comparative immunity from the disease of large cities, where the proportion of biting insects to the human population is less than in the sparsely settled rural districts. In the towns of Massachusetts where the disease has been most prevalent, the proportion of animals to the population has been greater than in the large cities. We know that dogs, cats, and other animals may have paralyzes analagous to the paralyzes of acute poliomyelitis. In 34 out of 110 homes investigated during the Massachusetts epidemic there was paralysis or death in 82 animals near the time of the human paralysis. It is reasonable to suppose that recovered cases of infantile paralysis may act as carriers of the disease. Osgood and Lucas found an active virus in the nasopharyngeal membrane of one monkey, which had recovered from an acute attack, five and one-half months afterwards, and in another six weeks afterwards.

The work of many investigators, notably Harbitz and Scheel, Wickman, and Strauss, has produced an accurate picture of the pathological changes occurring in the brain and spinal cord. The most characteristic lesions of the disease are found in the spinal cord, especially in the anterior horns of the gray matter of the cervical and lumbar enlargements. In the gray matter in the early stages of the lesions are: (1), congestion of the blood vessels; (2), edematous softening, sometimes accompanied by hemorrhage; (3), infiltration with cells, chiefly lymphocytes with a few large cells, probably phagocytes; (4), degeneration and diminution in the number of nerve cells. In the later stages the nerve cells and their processes are absent and there is infiltration with phagocytic cells, plasma cells, proliferated glia cells, and connective tissue cells. In the white matter, in the early stages of the disease the lesions consist of congestion, edema and cellular infiltration of the adventitial lymph spaces of the blood vessels, and to a slight extent of the white matter as well. The pia mater also shows some infiltration, chiefly with lymphocytes, which is greatest in the anterior portions of the cord in the lumbar and sacral regions. In the spinal ganglia are constant changes which are similar to those described in the cord itself. These account for the pain which is a constant feature of the acute stage of the disease. In the later stage of the disease there is degeneration and atrophy of nerve fiber tracts, anterior roots, motor nerves and muscles, depending in extent and location upon the nerve cells which have been destroyed. Similar lesions to those found in the cord are found in the medulla and pons. The brain in the encephalitic form shows congestion of blood vessels, small hemorrhages, cellular infiltration of the vessel sheaths and of the brain substance. Certain general pathological changes of the thoracic and abdominal organs such as hyperplasia of the lymphadenoid tissue of the intestine, mesentery and spleen, acute degeneration of the myocardium, liver and kidneys have been noted. The exact path by which the virus enters the body is at present not definitely known, but there is clinical and experimental evidence which makes it seem probable that infection frequently gains access from the upper respiratory tract.

A very simple and practical clinical classification of the types of poliomyelitis has been proposed by Müller: (1), the spinal form; (2), the bulbar form; (3), the cerebral form and (4), the abortive cases. It is only during the past seven years that the last type has been recognized. To this class belong those cases in which the paralysis lasts but a few hours or days. They are quite numerous in every epidemic and their recognition is important so that quarantine may be established. Now, too, considerable attention is paid to the cerebral form of the disease, whereas previously those cases were undiagnosed.

The diagnosis of infantile paralysis of the spinal type after the paralysis has set in is very easy. Difficulties may be encountered with the other type. Blood examination so far has proved of very little value. The findings are very variable indeed. Of great value, however, is lumbar puncture. The cerebrospinal fluid is increased in amount.

It gives a marked protein reaction with Noguchi's test, and an excess of cells, first polynuclear and later mononuclear. The finding of tubercle bacilli in the fluid will serve to differentiate tuberculous meningitis from poliomyelitis—a valuable aid, as these diseases often resemble each other very closely.

The treatment of poliomyelitis consists in preventing the spread of the disease to other persons, in applying general symptomatic procedures, and in attempting the restoration of muscular efficiency. Strict quarantine is essential. All other members of the family except the breadwinner should be quarantined for six weeks to three months. In Nebraska in 1909 an outbreak was apparently checked by these measures. Flies and other insects should be kept out of the sickroom by careful screening. Dogs, cats, or chickens showing any sign of illness should be destroyed. The doctors and nurses should wear caps and long gowns and should carefully disinfect their hands after working with patients. Bed linen should be sterilized and the room fumigated with formaldehyde when the quarantine is lifted. Other members of the family who have been exposed should use a 1 per cent hydrogen peroxide nasal spray and for a time take urotropin internally.

The general treatment of the acute stages as regards diet, bathing, catharsis, etc., is the same as in other infectious diseases. Special symptoms should be treated as they arise. Urotropin should be given internally and a hydrogen peroxide nasal spray used. For the paralysis, atrophy and contractures, massage and electricity and various orthopedic measures are resorted to. Astonishing is the extent of the recovery from the early paralysis that is sometimes seen.

New and Nonofficial Remedies.

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Cholera Bacterin, Mulford, is designed for the purpose of immunizing against cholera and contains killed cholera vibrios. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, June 1, 1912, p. 1685).

Typho-Bacterin, Mixed, Mulford, is a typhoid vaccine containing killed *Bacillus typhosus* and *Bacillus paratyphosus* A and B. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, June 1, 1912, p. 1685).

Bismuth Beta-Naphtholate (Bismuthi Betanaphtholas) is a bismuth salt of beta-naphthol. It is a brownish or grayish powder without odor, almost tasteless and insoluble in water. It is decomposed into its constituents in the intestines and hence is used in catarrhal and fermentative gastroenteric disorders, such as gastritis, dysentery, diarrhea, etc. Dose, for children 0.1 to 0.3 gm. (1½ to 5 grains), and for adults, 1.5 to 5 gm. (22 to 75 grains) daily.

Bismuth Beta-Naphtholate, Mulford, complies with the description given above. It is also marketed in the form of tablets each containing 0.3 gm. (5 grains). H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, June 15, 1912, p. 1857).

Purified Extract of Adrenal Gland, Mulford, is an extract of the suprarenal gland, standardized physiologically by measuring its effect on blood-pressure and so adjusted as to correspond to the effect of a 4 per cent of purified epinephrine. It has, therefore, approximately four times the strength of desiccated suprarenal gland, U. S. P. It is marketed as follows: Adrenal Ointment, Mulford, containing purified extract of adrenal gland, Mulford, 25 parts, boric acid 1 part in 1,000 parts. Urethral Suppositories Adrenal Comp., Mulford, each containing purified extract of adrenal gland 0.06 gm. (1 grain), cargentos 0.13 gm. (2 grains). Vaginal Suppositories Adrenal Comp., Mulford, each containing purified extract of adrenal gland 0.06 gm. (1 grain), cargentos 0.13

gm. (2 grains), ichthyol 0.13 gm. (2 grains). H. K. Mulford Co., Philadelphia (*Jour. A. M. A., July 13, 1912, p. 121*).

Articles accepted for N. N. R. Appendix:

Lozenges Adrenal Comp. each containing dried suprarenal gland 0.01 gm. ($\frac{1}{8}$ grain), menthol 0.0013 gm. (1-50 grain), benzoic acid 0.0026 gm. (1-24 grain), eucalyptol 0.0013 gm. (1-50 grain).

Rectal Suppositories Adrenal each containing dried suprarenal gland 0.3 gm. (5 grains). (*Jour. A. M. A., July 13, 1912, p. 121*).

Book Reviews

A Text-Book of Pathology. For Students of Medicine. By J. George Adami M. A., M. D., LL. D., F. R. S., Professor of Pathology in McGill University, Montreal, and John McCrae, M. D., M. R. C. P., (London), Lecturer in Pathology and Clinical Medicine in McGill University, formerly Professor of Pathology in the University of Vermont. In one octavo volume of 759 pages, with 304 engravings and 11 colored plates. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York, 1912.

On a superficial inspection this work might be thought to be an epitome of the "Principles of Pathology," by the senior author. On a more careful reading, however, there is found considerable evidence of modification. As the authors state in the preface, the "Principles of Pathology" represent their "matured conclusions regarding the respective value to students of general, systemic and special pathology, and upon the orderly treatment of the different sections." The order found best in the larger work has not been departed from in the present volume. The authors have, therefore, selected and dwelt upon those portions of pathology which they regard as most important for the student. The entire book is essentially a text-book for medical students and is not intended for reference or for advanced workers.

The book is divided into two parts, the first consisting of 331 pages dealing with general, and the second of 377 pages dealing with special and systematic pathology. As in the "Principles of Pathology" the part embracing general pathology is of unusual excellence. The chapters, "The Morbid and Reactive Processes," which includes a section on pain and its significance, not contained in the "Principles," and two others, "Progressive Tissue Changes" and "Regressive Tissue Changes," are very clearly written and contain an abundance of information. More attention is paid to the physiological and chemical aspects of the subject than is the case with most other text-books of pathology. For this reason, if for no other, the book is meritorious. The second part consists of the usual routine treatment of the various pathological changes occurring in the different organs and systems. The matter is usually arranged under the following subheads: abnormalities, circulatory disturbances, inflammations, granulomas and progressive changes. The histological descriptions are unfortunately rather meager. The infectious diseases are not considered as entities, but are scattered throughout the book under the organs affected; e. g., typhoid fever is considered an intestinal disease and only three additional references, typhoid carriers, the skin in typhoid and predisposition toward typhoid, are made concerning the disease.

The illustrations are numerous and most of them good. Many new ones not found in the "Principles of Pathology" have been inserted. The colored plates have been well selected and admirably reproduced. Not a few of the drawings by E. S. C. are, to say the least, schematic. Such lesions as verrucose endocarditis (No. 194), mitral stenosis (No. 200), tuberculous cavity (No. 230) and tuberculosis of the kidney (No. 288) could be much better illustrated by photographs. The index is full and accurate, thereby greatly enhancing the usefulness of the volume to students. It is to be regretted that a few well chosen literature references,

which might serve to lead the beginner whose interest has been aroused a little more deeply into the subject, are not given. H. O. R.

Gould and Pyle's *Cyclopedia of Practical Medicine and Surgery, with Particular Reference to Diagnosis and Treatment*. Second Edition, Revised and Enlarged by R. J. E. Scott, M. A., B. C. L., M. D., New York. Cloth, two volumes, \$14.00 net. P. Blakiston's Son & Company, Philadelphia, 1912.

Under the supervision of R. J. E. Scott, the editor of a number of medical books and compilations, Gould and Pyle's well known *Cyclopedia* has undergone thorough revision. In this process there have been added to the list of contributors the names of men as prominent as those who helped in the preparation of the original edition. Not only have there been added new articles to cover recent advances, Brill's Disease, Opsonin, Vaccine, Serum and X-ray Therapy, Pellagra being selected at random as examples; but the original articles have been subjected to revision and enlargement, two full columns upon the salvarsan treatment of syphilis being mentioned as an example. New illustrations have been added and a number of older ones have been replaced by better ones. The second edition maintains the aim of the first, to give a maximum of practical matter relating largely to diagnosis and treatment in a minimum of space. O. T. S.

Pellagra. By George M. Niles, M. D., Professor of Gastro-enterology and Therapeutics in the Atlanta School of Medicine, Atlanta, Georgia. Octavo of 253 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth \$3.00 net.

Though physicians in European countries have been carefully studying pellagra for the past two centuries, it is only during the last decade that any particular attention has been given to it in this country. The disease is so widespread in the southern portions of the United States, so severe in its local and general manifestations, and so disastrous in its results that the profession should welcome any book that gives us a thorough knowledge of the disease. Such a monograph Doctor Niles has written. Here we find a thorough discussion of the history of pellagra, its etiology, pathology, symptomatology and treatment. The clinical manifestations of the disease are illustrated by numerous photographs. The author gives a very thorough discussion of the prevailing views as to the etiology of the disease and concludes with a reiteration of Lombroso's theory that in pellagra we are dealing with an intoxication produced by poisons developed in spoiled corn through the action of certain micro-organisms in themselves harmless to man. The book, which is written in a very attractive style, gives an excellent survey of this interesting disease. J. P.

Duodenal Ulcer. By B. G. A. Moynihan, M. S., (London), F. R. C. S., Senior Assistant Surgeon at Leeds General Infirmary, England. Second edition, enlarged. Octavo of 486 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$5.00 net; half morocco, \$6.50 net.

The second edition of this well known monograph presents changes in the text "chiefly concerned with the differential diagnosis of duodenal ulcer and the result of X-ray examination of the stomach after the administration of bismuth." For those unacquainted with the book it may be pointed out that Moynihan describes the pathology, the diagnosis and the results of his operative therapy in a most fascinating manner. On reading the book one feels that Moynihan has proven that he, at least, is able to diagnose such ulcers mainly from the history of the characteristic

symptoms which they present, and to successfully cure the condition by a properly chosen operation (gastroenterostomy, resection of the ulcer, etc.). One who has followed the literature of this subject will have seen that, beginning with a decided hostility toward Moynihan's views, those having a large experience in gastrointestinal pathology are coming more and more around to his position. It will probably finally be shown that the question is not so simple as Moynihan would have us believe; but this need not detract from the merit of his work in having discovered to us a new point of view. The history of this controversy shows the advantage that the surgeon, forced by the nature of his work to view at least the gross anatomy of the lesion with which he deals, has over the internist who frequents neither the ante nor postmortem operating room. It would seem that in certain cases the surgeon is the true internist. "Duodenal Ulcer" is a good book; read it and narrow your list of "functional diseases."

C. H. L.

Pellagra: History, Distribution, Diagnosis, Prognosis, Treatment, Etiology,
By Stewart R. Roberts, S. M., M. D., Associate Professor of the Principles and Practice of Medicine, Atlanta College of Physicians and Surgeons, Atlanta, Georgia; Physician to the Wesley Memorial Hospital; Formerly Professor of Biology in Emory College. Cloth, 272 pages, 89 figures and a colored frontispiece, \$2.50. C. V. Mosby Company, St. Louis, 1912.

Only a few years ago pellagra had its innings in the daily papers and in the popular magazines of America, and much was written that savored strongly of hysteria. Perhaps we overestimated the importance and the dangers of the disease when its prevalence in this country first became known, and possibly much that was not pellagra was called pellagra. But that it existed in the United States cannot be doubted and that it has disappeared cannot be believed. In the words of Roberts, "The history of pellagra in other countries for the past two centuries warrants the belief that the United States is facing a long period during which the disease will prevail and in which many thousand human beings will become its victims. Little children will yield themselves to its insinuating and mysterious grasp; strong men will become weak, and no longer able to render service as citizens; its mark will be left on the offspring of pellagrin mothers; and especially through the southern states its ravages and its memory will exist side by side in every rural community" (p. 265). It is well, therefore, that the hysteria of the lay press should give way to writings which are the result of serious consideration and study upon the part of American physicians, especially those physicians who live where the disease is prevalent.

Roberts discusses in most readable style so much as is known and weighs carefully so much, and it is much, as is still theory. His attitude toward the disease can be best understood from the following paragraph: "One need not expect to find a typical pellagra. It is a disease of many symptoms and of many variations; its only consistency is its inconsistency; it seems cured and yet recurs; the pellagrin seems to be approaching his end and yet lives for many years; it spreads and is not contagious; the offspring of the pellagrin receives his mark and yet it is not inheritable; it is not and appears; it is and disappears; it is morbid entity and yet it contains within itself many lesser morbid entities; it falls with equal right in the sphere of dermatology, neurology, and gastrology, and yet it is a general disease; divers diseases become one, and this one is called pellagra; there is no pellagra—only the pellagrous" (p. 18). This serves also as a sample of the style in which the book is written. The author discusses the question of contagion, concludes that pellagra is not contagious, and adds "Pellagra is bad enough, and the sadness symptomatic of the disease is sufficient, without causing the pellagrin to feel that she is a menace and a source of contagion. It would be different if it were true, but pellagra is not contagious" (p. 32).

An understanding of the clinical and nervous manifestations of the disease is aided by the case histories which are given, and the skin lesions are illustrated by good photographs. The pathological histology, except that of the central nervous system, receives scant attention, and the photomicrographs, with the exception of those illustrating the central nervous system changes, are poor; figures 17 and 18 are so very poor that one cannot even be sure that they have been transposed, but we have a suspicion that spleen has been labeled liver and liver spleen. The all-absorbing question in pellagra is that relating to etiology, and we are not yet anywhere near a solution. Roberts reviews all the points in favor of the zeistic and the infection theories, but judicially and sensibly decides in favor of neither; it is to be regretted that he has made no mention of the rather striking experimental investigations of Raubitschek. In the legend of figure 82 *Usailago* should read *Ustilago*. A discrepancy is the statement on page 155 that the cerebrospinal fluid was acid in reaction, whereas in the table on the succeeding page the reaction in every case is given as alkaline.

Roberts has rendered the American medical profession a distinct service in presenting so careful and so readable a summary of an important disease.

O. T. S.

Acknowledgments

Arteriosclerosis—Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. With a Special Chapter on Blood Pressure. By Louis M. Warfield, A. B., M. D., Assistant Superintendent and Resident Physician to Milwaukee County Hospital, Assistant Professor of Medicine, Wisconsin College of Physicians and Surgeons, Milwaukee, Wisconsin. With an Introduction by W. S. Thayer, M. D., Professor of Clinical Medicine, Johns Hopkins University. Illustrated with 28 engravings. Cloth, 220 pages, \$2.50. C. V. Mosby Company, St. Louis, 1912.

The Practical Medicine Series. Volume III, Series 1912: The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D.; Gustavus P. Head, M. D. Cloth, 358 pages, 4 plates, 26 figures, \$1.25. The Year Book Publishers, Chicago.

The Practical Medicine Series. Volume IV, Series 1912; Gynecology. Edited by Emilius C. Dudley, A. M., M. D., and C. von Bachellé, M. S., M. D. Cloth, 228 pages, 16 plates, 16 figures, \$1.25. The Year Book Publishers, Chicago.

The Care of the Skin and Hair. By William Allen Pusey, A. M., M. D., Professor of Dermatology in the University of Illinois. Cloth, 182 pages, 3 figures. D. Appleton & Company, New York and London, 1912.

Digestion and Metabolism. The Physiological and Pathological Chemistry of Nutrition. For Students and Physicians. By Alonzo Englebert Taylor, M. D., Rush Professor of Physiological Chemistry, University of Pennsylvania, Philadelphia. Octavo, 560 pages. Cloth, \$3.75 net. Lea & Febiger, Philadelphia and New York, 1912.

A Text-book of Practical Therapeutics. With especial reference to the application of remedial measures to diseases and their employment upon a rational basis. By Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Fourteenth edition, thoroughly revised. Octavo, 984 pages, with 131 engravings, and 8 full-page colored plates. Cloth, \$4.00 net. Lea & Febiger, Philadelphia and New York, 1912.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I, Number 3 (June). Octavo of 174 pages, illustrated. Price per year: Paper, \$8.00; Cloth, \$12.00. W. B. Saunders Company, Philadelphia and London, 1912.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume I, Number 4 (August). Octavo of 154 pages, illustrated. Price per year: Paper, \$8.00; Cloth, \$12.00. W. B. Saunders Company, Philadelphia and London, 1912.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1911. Octavo of 603 pages, illustrated. Cloth, \$5.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

A Collection of Papers (published previous to 1909). By William J. Mayo, M. D., and Charles H. Mayo, M. D. Two octavo volumes, averaging 550 pages each, illustrated. Per set, cloth \$10.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Surgical After-Treatment. By L. R. G. Crandon, M. D., Assistant in Surgery at Harvard Medical School, and Albert Ehrenfried, M. D., Assistant in Anatomy at Harvard Medical School. Second edition. Octavo of 831 pages, with 264 original illustrations. Cloth, \$6.00 net; Half Morocco, \$7.50 net. W. B. Saunders Company, Philadelphia and London, 1912.

The Collected Works of Christian Fenger, M. D., Edited by Ludvig Hektoen, M. D., Professor of Pathology at Rush Medical College. Two octavo volumes averaging 525 pages each, illustrated. Per set: Cloth, \$15.00 net; Half Morocco, \$18.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Infant Feeding. By Clifford G. Grulee, A. M., M. D., Assistant Professor of Pediatrics at Rush Medical College, Attending Pediatrician to Cook County Hospital. Octavo of 295 pages, illustrated. Cloth, \$3.00 net. W. B. Saunders Company, Philadelphia and London, 1912.

Sexual Impotence. By Victor G. Vecki, M. D., Consulting Genito-urinary surgeon to the Mount Zion Hospital, San Francisco. Fourth edition, enlarged. 12mo of 394 pages. Cloth, \$2.25 net. W. B. Saunders Company, Philadelphia and London, 1912.

An Essay on Hasheesh, Including Observations and Experiments. By Victor Robinson, Contributing Editor, Medical Review of Reviews, New York. Cloth, 83 pages, 50 cents. Medical Review of Reviews, New York, 1912.

The Pituitary Body and its Disorders. Clinical States Produced by Disorders of the Hypophysis Cerebri. By Harvey Cushing, M. D., Associate Professor of Surgery, Johns Hopkins University; Professor of Surgery (Elect), Harvard University. Cloth, 341 pages, 319 illustrations and a colored frontispiece, \$4.00. J. B. Lippincott Company, Philadelphia and London, 1912.

Health in Home and Town. By Bertha Millard Brown, S. B., Author of "Good Health for Girls and Boys." Cloth, 312 pages, illustrated, 60 cents. D. C. Heath & Company, New York, Boston and Chicago, 1912.

Philadelphia General Hospital Reports. Volume VIII, 1910. Edited by David Riesman, M. D.

Proceedings of the Pathological Society of Philadelphia. New Series, Vol. XIV, No. 4, July, 1912.

L'Istituto Fototerapico di Firenze, Diretto dal Prof. Dott. Celso Pellizzari.

Infection and Recovery from Infection. By Simon Flexner, M. D. Hamilton Lecture, February 8, 1912. Smithsonian Miscellaneous Collections, Volume 59, Number 8. The Smithsonian Institution, 1912.

The Production of Mineral Waters in 1911. By George Charlton Matson. With a Paper on the Concentration of Mineral Water in Rela-

tion to Therapeutic Activity. By R. B. Dole. Advance Chapter from Mineral Resources of the United States, Calendar Year 1911. Government Printing Office, 1912.

Parcel Post. Report Submitted to the Subcommittee on Parcel Post of the Senate Committee on Post Offices and Post Roads. By Hon. Jonathan Bourne, Jr., Chairman. Government Printing Office, 1912.

The Institution Quarterly. Volume III, Number 2, June 30, 1912.

Journal of Workmen's Compensation Insurance. Volume I, No. 1. State Liability Board of Awards, Columbus, July 1, 1912.

Does the Workmen's Compensation Law of Ohio Protect the Employers of Ohio? State Liability Board of Awards, Columbus.

Workmen's Compensation Act of the State of Ohio. With Appendix and Notes to Sections. State Liability Board of Awards, Columbus.

Annual Statistical Report of the Secretary of State to the Governor and General Assembly of the State of Ohio for the Year Ending November 15, 1911.

University of Colorado. School of Medicine. Annual Announcement.

Albany Medical College. Announcement for Session 1912-1913.

University of Southern California Bulletin. Medical Department. Annual Announcement, Session 1912-1913.

Reprints:

The Physical Welfare of Policyholders and What Life Insurance Companies can do to Increase it. By Eugene L. Fisk, M. D., Medical Director, Postal Life Insurance Company, New York.

The Owen Bill. By Isadore Dyer, Ph. B., M. D., New Orleans.

The Mating of the Unfit: A Study in Eugenics. By W. J. Conklin, A. M., M. D., Dayton.

Fifteenth International Congress on Hygiene and Demography

With the publication of the provisional program of the Congress to be held in Washington, September 23-28, the very great importance of this gathering becomes apparent.

The Executive Committee is composed of the following: William H. Welch, Chairman; Walter F. Willcox, Vice-Chairman; Henry B. Beyer; Hermann M. Briggs; John S. Billings; Rupert Blue; Edward T. Devine; E. Dana Durand; John S. Fulton; Walter D. McCaw; J. W. Schereschewsky. The Secretary-General is John S. Fulton.

Membership: Any person who is interested in the study or practice of hygiene or demography may become a member of the Congress, entitled to take part in the proceedings, and to receive the published transactions, on payment of the membership fee of five dollars.

Exhibition: Following the precedent established by previous Congresses, it is planned to hold, in connection with the Congress, an Exhibition on Health during the three weeks from September 16 to October 4, at which the hygienic and demographic work of the United States and its dependencies is to be illustrated. The Exhibition will be divided into the following groups:

Group I. Vital Statistics and Demography.

Group II. Growth and Nutrition; Food.

Group III. The Hygiene of Infancy and Childhood (including Prevention of Infant Mortality and School Hygiene).

Group IV. The Physiology and Hygiene of Exercise.

Group V. Housing.

- Group VI. Industrial and Occupational Hygiene.
- Group VII. Communicable Disease.
- Group VIII. State and Municipal Hygiene.
- Group IX. Care of the Sick; Life Saving.
- Group X. Hygiene of Traffic and Transportation.
- Group XI. Military, Naval, and Tropical Hygiene.
- Group XII. Sex Hygiene.

The members of the State Committee from Ohio are the following: Roger G. Perkins, Cleveland; George A. Fackler, Cincinnati; Walter W. Brand, Toledo; John H. J. Upham, Columbus; Charles W. King, Dayton.

Organization: The Congress will be organized in two divisions; a division of Hygiene in eight sections; and a division of Demography, the ninth section.

Provisional Program PLENARY SESSIONS

I. Address by Dr. Max Rubner, Königl. Friedrich Wilhelm's Universität, Berlin, Germany. President of the Permanent International Commission of the Congresses of Hygiene and Demography—"Eine Darstellung der Bedeutung der Hygiene und Demographie für die sanitären Einrichtungen der Nationen mit einer besonderen Betonung der gemeinsamen internationalen Arbeit und einen historischen Ueberblick über das bisher Geleistete."

II. Address by Sir Thomas Oliver, University Durham College of Medicine, Newcastle, England:—"Dust and Fume—Foes of Industrial Life."

III. Address by Dr. Jacques Bertillon, Chief of the Bureau of Municipal Statistics, Paris, France:—"Mortalité et Maladies Causes de Mort dans les Différentes Professions."

DIVISION I—HYGIENE

Section I—Hygienic Microbiology and Parasitology

I, Filterable Viruses. II, Poliomyelitis, Etiology and Mode of Transmission (Joint Session with Section V). III, Infections (other than Poliomyelitis) involving the Central Nervous System (Joint Session with Section V). IV, Paratyphoid and Paratyphoid-like Bacilli, with Especial Reference to their Dissemination in Nature and their Relation to Man and Animals. V, Special Selective Media for Microorganisms. VI, Symposium on Parasitic Amebae.

Section II—Dietetic Hygiene; Hygienic Physiology

I. The Specific Dynamic Action of Foodstuffs. II, Nutrition and Growth. III. The Role of Inorganic Substances in the Nutrition of Man. IV, The Physiological Significance of Some Substances used in the Preservation of Food. V, Practical Dietetics. VI, Ventilation in its Hygienic Aspects. VII, The Hygienic Physiology of Exercise.

Section III—Hygiene of Infancy and Childhood; School Hygiene

I, Hygiene of Infancy. II, Hygiene of Childhood. III, School Hygiene. IV, The School Building. V, The School Child. VI, Medical Inspection. VII, Oral Hygiene.

Section IV—Hygiene of Occupations

I, The Physiology and Pathology of Work and Fatigue. II, Fatigue Neuroses. III, Occupation Neuroses. IV, The Practical Application of the Study of Fatigue in Acquiring Protection for the Workers. V, The Physiology and Pathology of Work in Compressed Air. VI, The Effects of Exposure to Intense Heat on the Working Organism. VII, Diseases and Accidents of Miners and Tunnel Workers. VIII, Diseases and Accidents Caused by Electricity. IX, Diseases and Accidents of Iron and Steel Workers. X, Occupational Diseases. XI, Medical Examination of Employees. XII, Résumé of the Results Obtained at the Special Clinic for Occupational Diseases at Milan, Italy. XIII, Safety Devices and the

Prevention of Accidents. XIV, The Protection and Welfare of Workers. XV, Governmental Study of Occupational Hygiene. XVI, Industrial Insurance the Basis of Industrial Hygiene. XVII, Sex Problems in Industrial Hygiene. XVIII, Age Problems in Industrial Hygiene. XIX, Tenement House Manufacture; the Causes, Evils and Remedy. XX, The Problem of Smoke Nuisance in Industrial Cities. XXI, Measurements of the Healthfulness of Occupations (Joint Session with Section IX). XXII, The Relations of Alcoholism to Accident, Sickness and Mortality (Joint Session with Section IX).

Section V—Control of Infectious Diseases

I, Bacillus Carriers (Joint Session with Section VIII). II, Relative Importance of Aerial and Contact Infection in the Dissemination of Contagious Diseases. III, Importance of Flies and Other Insects as Carriers of Infectious Diseases. IV, The Control of Disinfection and the Influence of Infected Rooms and Fomites in the Dissemination of Various Infectious Diseases. V, The Role of Artificial Immunization in the Prevention of Diphtheria, Typhoid Fever, Plague, Cholera, Tuberculosis (Joint Session with Section VIII). VI, Prevention of Spread of Infectious Diseases on Shipboard (Joint Session with Section VIII). VII, The Role of Bovine Tuberculosis in the Production of Human Tuberculosis. VIII, The Administrative Control of Tuberculosis.

Section VI—State and Municipal Hygiene

I, Symposium on Public Health Organization and Administration. II, The Sanitary Aspects of Public Water Supplies. III, Symposium on Colonial Hygiene. IV, Disposal of Sewage and Wastes. V, Air Pollution and Ventilation. VI, Certain Social Aspects of Public Hygiene. VII, Certain Sanitary Aspects of Food Production and Control. VIII, The Sanitary Betterment of Milk Production and Distribution.

Section VII—Hygiene of Traffic and Transportation

I, The Powers and Duties of Government in Respect to the Hygiene of Traffic and Transportation. II, Hygiene of Street and Tramway Traffic. III, Sanitation of Roadbeds and Stations. IV, Sanitation of Railway Carriages. V, Protection of Employees of Common Carriers. VI, Protection of Passengers. VII, Hygiene of Food and Water Supplies of the Traveling Public. VIII, Sanitary Supervision of Merchandise in Transportation. IX, The Prevention of the Spread of Communicable Diseases through Traffic. X, Hygiene of Lake and River Traffic. XI, Hygiene of Ships and Shipping. XII, Supervision of Emigration and Immigration.

Section VIII—Military, Naval and Tropical (Colonial) Hygiene

I, Venereal Prophylaxis in Armies and Navies. II, Dressing Stations and Transportation of Wounded in Battle at Sea. III, Hospital Ships. IV, The Hygiene of Military Camps. V, Disposal of Wastes. VI, Water Purification. VII, The Restriction of Malaria. VIII, The Dissemination and Prevention of Yellow Fever. IX, Hygiene of Engine and Fireroom Force. X, Disinfection on Shipboard. XI, Personal Hygiene in the Field, Including the Disinfection of Clothing and Equipment with and without Apparatus. XII, The Spread and Prevention of Tropical Diseases (Cholera, Dysentery). XIII, Origin and Control of Kala-Azar and Oriental Sore. XIV, Spirilloses, Relapsing Fevers, Syphilis, Yaws. XV, The Control and Eradication of Hookworm Disease. XVI, The Influence of Tropical Sunlight and Heat. XVII, Hygienic Interpretations of Recent Changes in the Field-rations and their Preparation. XVIII, The Hygiene of Submarine Boats. XIX, International Basis for Naval Statistics.

DIVISION II—DEMOGRAPHY (SECTION IX)

I, The Development of Vital Statistics in the United States since 1900. II, The Relation of Rural and Urban Populations, as shown by the Census in the United States and Canada, to Public Health Problems. III, The

Classification of Causes of Death, with Especial Reference to the Changes Made in 1909 in the International Classification and to Other Changes that may be Needed. IV, Diagnoses of the Causes of Death. The Margin of Error to Which They are Subject in Various Places and for Various Diseases. V, The Training of Demographers. VI, Mechanical Methods of Tabulating Statistics. VII, The Present Position of Municipal Vital Statistics. VIII, Infant Mortality in the United States and Other Countries. IX, Validity of Substitutes for the Birth-rate Proposed or Used in the United States. The Present Position and the Prospects of American Birth-rate Statistics. X, American Statistics of Marriage and Divorce. XI, Statistics of Families. XII, The Present Condition of Criminal Statistics in the United States and European Countries. XIII, Progress Toward the Construction of Life Tables for the Population of the United States. XIV, Statistical Bases for a System of Pensioning Members of the Civil Service. XV, Statistics of Pauperism. Sources and Methods. XVI, Women in Industrial Life—An International Statistical Examination. XVII, The Establishment of a Series of Norms for Death-rates. XVIII, The Establishment and Uses of Population Norms Representing Constitution According to Sex and Age, and According to Age Alone.

Stations of the City Bacteriological Laboratory

Below is given a revised list of the stations maintained by the City Bacteriological Laboratory. At these, outfits are to be obtained for the bacteriological examination of throat cultures for *B. diphtheriae*, for the collection of blood for the typhoid agglutination reaction, and for the collection of sputum to be examined for *B. tuberculosis*. Used outfits left at the various stations are collected by a messenger sent out from the laboratory. The notification to the Health Office that outfits have been left for collection at any of the stations is, as is the other local work connected with the maintenance of the stations, a gratuitous service upon the part of the latter. Delays in notification occur, therefore, when other affairs interfere with prompt telephoning to the Health Office by the stations. This delay can be avoided if physicians will themselves immediately notify the Health Office that, and where, they have left outfits for collection. Cultures left late in the day cannot be collected until the following day; this together with the necessary overnight incubation causing a delay of forty-eight hours in the examination. In urgent cases, in which throat cultures are made late in the day or on Sundays or holidays, the cultures should be taken to the Health Office, where an incubator is kept.

Stations:

- II—Second Precinct Police Station, Oregon Avenue, N. E. and E. 24th St.
- III—Third Precinct Police Station, Orange Ave. S. E. and E. 37th St.
- IV—Fourth Precinct Police Station, Perkins Ave. N. E. and E. 55th St.
- V—Fifth Precinct Police Station, 2559 E. 79th St.
- VI—Sixth Precinct Police Station, 3333 E. 55th St.
- VII—Seventh Precinct Police Station, 8207 Broadway S. E.
- VIII—Eighth Precinct Police Station, Detroit Ave. N. W. and W. 29th St.
- IX—Ninth Precinct Police Station, W. 25th St. near Holmden Ave. S. W.
- X—Tenth Precinct Police Station, 2061 W. 53d St.
- XI—Eleventh Precinct Police Station, 1961 E. 105th St.
- XII—Twelfth Precinct Police Station, 8316 Detroit Ave. N. W.
- XIII—Thirteenth Precinct Police Station, 7923 Superior Ave. N. E.
- XIV—Fourteenth Precinct Police Station, E. 140th St. and Saranac Road.

Substations :

- 1—Wm. Emerich, Pharmacy, Broadway S. E. and Woodland Ave. S.E.
- 2—The H. J. Sherwood Co., 2064 E. 9th St.
- 3—Health Office, 307 Superior Ave. N. E. (City Hall).
- 4—H. H. Flandermeyer, Pharmacy, 1134 St. Clair Ave. N. E.
- 5—G. W. Fay, Pharmacy, 3216 Payne Ave. N. E.
- 6—Diemert's Pharmacy, St. Clair Ave. N. E. and E. 125th St.
- 7—John F. Bartelt, St. Clair Ave. N. E. and E. 79th St.
- 8—Peerless Drug Co., 3002 Cedar Ave. S. E.
- 9—Central Pharmacy, Central Ave. S. E. and E. 55th St.
- 10—Winger's Pharmacy, Euclid Ave. and E. 55th St.
- 11—Rosewater Pharmacy, 5114 Woodland Ave. S. E.
- 12—Petersilge's Pharmacy, Woodland Ave. S. E. and E. 22d St.
- 13—Cermak Drug Co., 6602 Wade Park Ave. N. E.
- 14—Benfield and Benfield, Pharmacy, 8527 Hough Ave. N. E.
- 15—Stern Drug Co., 12202 Euclid Ave.
- 16—Jos. Albrecht, Pharmacy, 7102 Central Ave. S. E.
- 17—Miller's Pharmacy, 3916 Cedar Ave. S. E.
- 18—Willard M. Fox, Pharmacy, 9702 Cedar Ave. S. E.
- 19—J. G. Vorel, Pharmacy, 7501 Kinsman Rd. S. E.
- 20—A. E. Walleck, Pharmacy, 8341 Woodland Ave. S. E.
- 21—E. H. Hecjler, Pharmacy, 3719 Broadway S. E.
- 22—A. B. Ejbl, Pharmacy, 7008 Broadway S. E.
- 23—Stern Drug Co., 7043 Superior Ave. N. E.
- 24—Henry J. Fischer, Pharmacy, 1738 W. 25th St.
- 25—G. M. Grosse, Pharmacy, 2024 W. 25th St.
- 26—R. G. Burkhardt, Pharmacy, 3934 Lorain Ave.
- 27—Geo. H. Bruehler, Pharmacy, 815 Jefferson Ave. S. W.
- 28—Peerless Drug Co., 2662 W. 14th St.
- 29—Rosky and Obert, Pharmacy, 7223 Lorain Ave.
- 30—Deutsch and Rosengarten, Pharmacy, 10503 Superior Ave. N. E.
- 31—S. S. Reich, Pharmacy, 3963 St. Clair Ave. N. E.
- 32—Mayell and Hopp, Pharmacy, 1104 Euclid Ave.
- 33—Fred J. Cermak, Pharmacy, 3507 E. 93d St.
- 34—Quincy Pharmacy, 8823 Quincy Ave. S. E.
- 35—Detroit Pharmacy, 5712 Detroit Ave. N. W.
- 36—Steiner's Pharmacy, Scovill Ave. S. E. and E. 46th St.
- 37—A. J. Maurer, Pharmacy, St. Clair Ave. N. E. and E. 105th St.
- 38—Peerless Drug Co., Superior Ave. N. E. and E. 55th St.
- 39—F. H. Bader, Pharmacy, 4180 Pearl Rd. S. W.
- 40—Flandermeyer's Pharmacy, 2360 W. 11th St.
- 41—Grossman Drug Co., Cedar Ave. S. E. and E. 83d St.
- 42—W. G. Marshall, Pharmacy, 9807 Lorain Ave.

Correspondence

August 26, 1912.

To the Editor, Cleveland Medical Journal:—

Dear Sir: In this morning's *Plain Dealer*, there appears a story which has been published without my knowledge or consent. It apparently has been copied from an article which I read before the Clinical and Pathological Section of the Academy, in May, 1912, and which appeared in the July number of the *Cleveland Medical Journal*.

It seems to me that, inasmuch as the local newspapers apparently receive copies of our medical journals, some form of censorship should be arranged for. This article was in no wise suited for publication in a lay journal and if I had known that it was to be published I certainly would have made an attempt to suppress it.

Yours very truly,
H. H. Drysdale, M. D.

Medical News

Federal Legislation: The Public Health Service Bill, passed by the House of Representatives on August 10 and by the Senate on August 13 and approved by the President on August 14, changes the name of the United States Public Health and Marine-Hospital Service to the United States Public Health Service, defines the duties of the service and increases the pay of the officers of the service. On August 19 the House passed the Sherley bill, which provides that any drug shall be deemed misbranded "if its package or label shall bear any statement, design or advice regarding the curative or therapeutic effect of such article which is false and fraudulent." The aim of the bill is to correct the defect in the Food and Drugs Act read into the Act by the recent decision of the Supreme Court.

Federal Examinations: The United States Civil Service Commission announces an examination on September 4 for dental interne (male) for the Government Hospital for the Insane at Washington, D. C.; and one on October 16 for trained nurses in the Isthmian Canal and Indian Services. The Surgeon General of the Army announces examinations to be held at Fort Slocum, New York; Columbus Barracks, Ohio; Jefferson Barracks, Missouri; Fort Logan, Colorado; and Fort McDowell, California, on October 7, to fill vacancies in the rank of Acting Dental Surgeon in the Army.

The Ninth International Otologic Congress was held in Boston, August 12 to 17. The following officers were elected: President, Clarence John Blake, Boston; Vice President, B. Alexander Randall, Philadelphia; Secretary-Treasurer, Henry O. Reik, Baltimore; Assistant Secretaries, William F. Knowles, Boston; Ralph Butler, Philadelphia, and Jesse W. Downey, Baltimore. The International Laval prize was awarded to George E. Schambaugh, Chicago, for his work on the physiology and anatomy of the labyrinth.

The First International Congress of Comparative Pathology, which will discuss the various phases of human, animal and plant pathology and their relations, will be held in Paris, October 17 to 23.

The American Hospital Association will hold its 14th annual meeting at Detroit, September 24 to 27. The following program has been announced: President's Address, Henry M. Hurd, Secretary, Board of Trustees, Johns Hopkins Hospital, Baltimore. Report of Committee on Construction, C. R. Holmes, Trustee, City Hospital, Cincinnati. Report of Committee on Training of Nurses. Report of Committee on Hospital Efficiency, Hospital Finances and Economics of Administration, Thomas Howell, Superintendent New York Hospital, New York City. Report on Out-Patient Work, Wayne Smith, Superintendent City Hospital, St. Louis. Report on Hospital Accounting, J. B. Draper, Superintendent University Hospital, Ann Arbor. Report on Medical Organization and Medical Education, R. O. Beard, University of Minnesota, Minneapolis. Report of Committee on Bureau of Hospital Information and Permanent Secretaryship, S. S. Goldwater, Superintendent Mt. Sinai Hospital, New York City. Report of Committee to Memorialize Congress to Place Hospital Instruments on the Free List, G. F. Clover, Superintendent St. Luke's Hospital, New York City. Report of Committee on Standard Nomenclature, Frederick A. Washburn, Superintendent Massachusetts General Hospital, Boston. Social Service in Massachusetts General Hospital, Ida M. Cannon, Social Service Department, Massachusetts General Hospital, Boston. The Economic Features and Feeding of Hospital Employees and Patients, H. T. Summersgill, Superintendent Post-Graduate Hospital, New York City. Economy in the Operating Room, Asa

Bacon, Superintendent Presbyterian Hospital, Chicago. A Contribution to the Problem of Convalescence, Fred Bush, Superintendent Burke Relief Foundation, New York City. The Use of Salvarsan in Hospitals, R. R. Ross, Superintendent General Hospital, Buffalo. The Cost of Infectious Disease, James W. Glover, University of Michigan, Ann Arbor. The Relation of the General and Special Hospitals in the Care of the Insane, Charles K. Clarke, Superintendent General Hospital, Toronto. Nursing Standards and the Supply of Pupil Nurses, Frederick A. Washburn, Superintendent Massachusetts General Hospital, Boston. The Grading of Nurses, Mrs. E. G. Fournier, Superintendent Minnewaska Sanitarium, Gravenhurst, Ontario. Hospitals and their Duty in Relation to the Prevention of Disease, Charles P. Emerson, Dean of the Medical Department, Indiana University, Indianapolis. The Hospital Laundry, Winford H. Smith, Superintendent Johns Hopkins Hospital, Baltimore. Hospital Organization, W. F. Metcalf, Detroit.

The Fourth Annual Meeting of the American Association of Clinical Research will be held in New York City, at the Academy of Medicine, November 9. The sessions will be held from 9 a. m. to 1 p. m., from 3 p. m. to 6 p. m., and from 8 p. m. to 10 p. m. The evening session will be open to the public. It is proposed to form, under the Association, centers of clinical research in various cities.

The American Therapeutic Society announces prizes of \$250.00, \$150.00 and \$100.00 to be awarded to the best reports on subjects relating to therapeutics, on the following conditions: 1.—The competition is to be limited to qualified physicians in the United States and Canada. 2.—The subject of the competition is to be limited to a substance or preparation which is official in the United States Pharmacopeia. 3.—The research may be either wholly laboratory or clinical, or laboratory and clinical combined, and must be conducted in a public institution. 4.—The reports must be (a) designated by a distinctive word or motto, and (b) must be accompanied by a sealed envelope marked with the said word or motto, and containing the name and address of the competitor and of the laboratories or hospitals in which the research was conducted. (c) The report and protocol must be typewritten. (d) These must be in the hands of the Chairman of the Committee before April 1, 1913. 5.—The reports and protocols are to be judged by a Committee consisting of the three Vice Presidents of the Society, who shall decide which are the best reports as showing valuable therapeutic research, and shall return their decision, together with all the papers submitted to them, to the Chairman of the Council of the Society before May 1, 1913. 6.—The Chairman of the Council shall then return the unsuccessful reports to their authors, and shall notify the successful author or authors. 7.—The successful report or reports shall be read by the author, or a designated member of the Society, on the first day of the meeting of the Society, immediately after the President's address. 8.—All matters connected with the competition shall be considered as absolutely confidential by the Chairman of the Council and the Judges, except as to the successful competitors. 9.—The Vice Presidents as judges may fail to award any prize if the report or reports entered in the contest are not found to be of a sufficiently high standard. 10.—In case any Vice President shall fail to act, the President of the Society shall designate a substitute.

The National Association for the Study and Prevention of Tuberculosis has designated Sunday, October 27, as National Tuberculosis Day, to be used by antituberculosis workers throughout the United States for the general education of churchgoers regarding tuberculosis and also to interest them in the sale of the Red Cross Christmas seal.

Sex Hygiene in New York: The State Department of Health of New York has undertaken a state-wide campaign of education among women and girls on the subject of sex hygiene. The work is to be done by means of lectures, circulars and exhibits, and will be carried on in cooperation with other organizations, as the Women's Christian Temperance Union, Association of Women's Clubs, etc. It is proposed to reach girls working in industrial establishments. The New York State Cancer Laboratory will cooperate in the teaching of the means of prevention and necessity for early skilled treatment of cancer. In order to carry on this work the Commissioner of Health has appointed a staff of women, selected from different cities throughout the state, to deliver lectures.

Reporting of Industrial Diseases has been made compulsory in the State of New York.

John Howland, professor of pediatrics in Washington University, St. Louis, has been appointed professor of pediatrics in Johns Hopkins University, director of the Harriett Lane Home for Invalid Children, and physician in charge of the pediatric department of the Johns Hopkins Hospital.

Senator Owen, author of the bill for the creation of a Federal Health Department, against whom a bitter fight has been waged by the opponents of the measure, won the nomination for senator in the recent Oklahoma primary election by a large majority; the nomination is considered equivalent to election.

Honorary Degrees: The honorary degree of Doctor of Science was conferred on J. Whitridge Williams, Dean of the Medical Department of Johns Hopkins University, at the two-hundred and fiftieth anniversary of Dublin University.—The University of Michigan has conferred the honorary degree of Master of Arts upon James C. Wood, of Cleveland, and Otto Landman, of Toledo.

Maurice Howe Richardson, Harvard University A. B., 1873, M. D., 1877, died at Boston, July 31, aged 60. He had been an assistant in anatomy under Oliver Wendell Holmes, and from 1903 until his death was Mosely professor of clinical surgery in Harvard University. He was surgeon-in-chief to the Massachusetts General Hospital; physician to the Boston Dispensary; surgeon to the out-patient department of the Boston City Hospital and Carney Hospital; and physician to the House of the Good Samaritan.

Thomas B. McClintic, M. D. University of Virginia, 1896; a Passed Assistant Surgeon of the United States Public Health and Marine-Hospital Service; died in Washington, August 13, aged 39, from Rocky Mountain spotted fever, contracted while investigating the disease in Bitter Root Valley, Montana. Thus another name is added to those of Lazear, Carrol and Ricketts, American physicians who, with no possible chance of private pecuniary gain, have sacrificed their lives to science.

The Dayton Medical Society, at its meeting on June 20, elected the following officers: President, J. F. Wuist; Secretary-Treasurer, C. O. Bayless.

The Tri-County Medical Society (Wood, Hancock and Seneca Counties) organized at Findlay, July 25, and elected officers as follows: President, Jacob A. Kimmell, Findlay; Vice Presidents, the Presidents of the County Societies; Secretary, C. B. Kennedy, Findlay.

The Sandusky County Medical Society has elected the following officers: President, M. Stamm; Secretary, Frank Moore, both of Fremont.

The Union Medical Association of the Sixth Councilor District of the Ohio State Medical Association held its 157th session at Meyer's Lake, Canton, on August 13. The following program was presented: 1, Typhoid Fever, A. B. Campbell, Orrville. 2, Hyoscin-Morphin Anesthesia, T. Frank Dornblaser, Walnut Creek. 3, Pernicious Anemia: Clinical Report, E. J. March, Canton; Pathology, C. A. LaMont, Canton.. 4, A Plea for a Better Understanding of Functional Nervous Disorders, H. H. Drysdale, Cleveland. 5, The Mentally Defective Child—How to Detect It and What to Do with It, Isabel A. Bradley, Akron. 6, Contusion of the Abdominal Wall without External Signs of Violence, A. F. House, Cleveland. J. C. M. Floyd, of Steubenville, President of the Ohio State Medical Association, was the guest of the local Association.

The Stark County Medical Society held its 132nd regular meeting at Canton, July 16. The program was as follows: 1, Feeding the Baby, L. B. Santee, Marlboro. 2, Spasm of the Arterioles in Arteriosclerosis, H. Clark Miller, Massillon. 3, Salvarsan—Report of a Case, G. M. Campbell, Navarre. 4, Report of a Case, M. M. Bauer, Lake.

M. H. Cannedy, Painesville, Coroner of Lake County, has resigned.

Stephen A. Douglass has been re-elected superintendent of the State Hospital for Tuberculosis at Mt. Vernon.

State Liability Board: William S. Reed, Hamilton; J. W. McKemey, Toledo; J. D. Beer, Wooster; J. P. Hersberger, Lancaster, and L. R. Fast, Paulding, have been appointed local medical examiners for the Board.

H. G. Sherman has resigned as Director of Medical Inspection under the Board of Education.

Convictions for Illegal Practice: C. F. Buelow, 2301 Eureka Court, Cleveland, was fined \$25 and costs for illegal practice of medicine. Mary Kusicka, 2700 East 55th Street, was found guilty of practicing midwifery without a license; she was fined \$50 and costs, suspended on her promise to discontinue the practice.

E. A. Peterson, head worker at Goodrich House since his graduation from the Medical Department of Western Reserve University in 1910, has been appointed chief of the Medical Inspection Department of the public schools.

Deaths

Frank Fife, Medical College of Ohio, Cincinnati, 1892, died at Dayton, June 29, aged 47.

James A. Miller, Cincinnati College of Medicine and Surgery, 1870, died at Sante Fe, New Mexico, June 30, aged 68.

Allen Duncan Sherman McArthur died at New Lexington, June 27, aged 76.

Isaac Newton Smith, Eclectic Medical Institute, Cincinnati, 1875, died at Westerville, June 27, aged 70.

Aaron Myers, Medical College of Ohio, Cincinnati, died June 22, at Hamilton, aged 76.

Calvin Smith, American Eclectic Medical College, Cincinnati, 1880, died at Farmland, Indiana, July 2, aged 67.

Francis Floyd Feather, Starling Medical College, Columbus, 1892, died at Sandy Lake, Pennsylvania, July 9, aged 54.

Ira W. Clark, Eclectic Medical College, Cincinnati, 1880, died at Winfield, Kansas, July 10, aged 55.

Nathan Mayer, Cincinnati College of Medicine and Surgery, 1859, died at Hartford, Connecticut, July 10, aged 73.

Rington Davis, Medical College of Ohio, Cincinnati, 1884, died at Brighton, England, July 9, aged 56.

Charles W. Ammerman, Western Reserve University, 1873, died at Greenwood, Delaware, April 11, aged 68.

William E. Wood, Eclectic Medical Institute, Cincinnati, 1891, died at St. Louis, July 23, aged 49.

Edwin Ricker Freeman, Eclectic Medical Institute, Cincinnati, 1889, died at Cincinnati, July 26, aged 46.

William W. Moore, Eclectic Medical Institute, Cincinnati, 1861, died at Summit, Mississippi, July 18, aged 74.

Thomas Joel Smith, Medical College of Ohio, Cincinnati, 1872, died at Pleasant Hill, Illinois, July 19, aged 67.

George S. Morris, Medical College of Ohio, Cincinnati, 1881, died at Arkansas City, Kansas, July 26, aged 61.

Henry W. Moore, Columbus Medical College, 1885, of Milan, died at Asheville, North Carolina, July 24, aged 50.

Samuel Campbell Hotchkiss, Western Reserve University, 1898, Assistant Surgeon U. S. P. H. & M. H. Service, died August 6, at Washington, D. C., aged 32.

Andrew Jessup Garrison, Medical College of Ohio, Cincinnati, 1880, of Indianapolis, died at Cincinnati, July 30, aged 59.

Frank M. Conn, Medical College of Ohio, Cincinnati, 1873, died at Seattle, Washington, July 24, aged 70.

Harley Hedges Williams, Ohio Medical University, Columbus, 1902, died at Sydney, August 1, aged 33.

Thomas Henry Brannan, Long Island College Hospital, Brooklyn, 1871, of Canal Dover, died at Cleveland, August 4, aged 66.

Frank Cowan, Long Island College Hospital, Brooklyn, 1872, died at Ashland, August 7, aged 63.

J. L. Jackson, Cincinnati College of Medicine and Surgery, 1884, died at Chattanooga, Tennessee, August 2, aged 54.

Lewis H. Watson, Eclectic Medical Institute, Cincinnati, 1867, died at Chicago, August 13, aged 70.

Leonard Morong Kimball, Pulte Medical College, Cincinnati, 1880, died at Brookline, Massachusetts, August 4, aged 64.

Chalmers M. C. Prentice, University of Wooster, Cleveland, 1872, died recently at the home of his daughter in Texas.

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Concerning the Histological Changes in Certain Organs in a Patient Dying after Salvarsan

By H. O. RUH, M.D., Resident Pathologist, The Lakeside Hospital,
Cleveland.

(From the Pathological Laboratory of The Lakeside Hospital.)

It is not the purpose of this note to discuss the fatalities in the administration of arseno-benzol, nor to enter into detail into the pathology of arsenic poisoning, but merely to place on record a case which shows a striking tissue reaction in certain organs, namely, the kidney and the liver, following the use of salvarsan. The following history and extract from the autopsy protocol will serve this purpose.

Clinical History:

C. C., aged fifty-four years, housewife, white, widow, was admitted to the hospital May 12, 1912.

Family History: The father died of asthma. Mother died during childbirth. There is no history of tuberculosis, gout, rheumatism, heart or kidney disease.

Personal History: The patient has been perfectly well with the exception of an occasional attack of rheumatism in the elbows. She is a hard worker and takes very little rest. She has four children living and well. Five children are dead, all dying at the age of three or four months. She has had two miscarriages.

Present Illness: At the age of ten years the patient noticed a swelling above the right knee; during the following eight years this swelling gradually became larger, and at the age of eighteen years it began to ulcerate on the posterior aspect. About four or five months after the ulceration began the swelling was incised and drained. This gave no relief. The swelling remained about the same size, and the ulceration continued. Two years ago a piece of femur was resected; four weeks later another piece was removed; and again five months later, a third and more extensive resection was done. Eighteen months ago the right leg was amputated at the upper third of the femur. The flaps healed quite readily, but two sinuses persisted. The patient entered the hospital for their treatment. For the past three or four weeks there has been a profuse purulent discharge.

Physical Examination: The general physical examination shows a well nourished, well developed woman of fifty-four years, the heart, lungs and abdomen showing nothing remarkable.

Special Examination: The right leg has been amputated at the upper third of the thigh, the stump showing three ulcerating surfaces, each about three centimeters in diameter, from which there exudes a foul smelling, yellowish, purulent material. The edges are reddened, raised, granular and overhang the ulcers.

Urine: Amber color; specific gravity, 1025; no sugar; no albumin; flocculent precipitate. Microscopical examination shows many leucocytes, a few epithelial cells, and granular casts.

Temperature and pulse normal.

Subsequent History: May 5, 1912, Wassermann reaction positive. Antiluetic treatment started. May 27, 1912, salvarsan, 0.5 grain given intravenously. Since receiving the injection the patient has been complaining of severe abdominal pain. Temperature a few hours after injection, 101.2°; pulse rate, 120 per minute.

After the salvarsan injection the patient did not void urine for four days (May 27-31). On the fourth day, however, she voided three ounces of clear urine (unfortunately no examination was made of this specimen), but from that time until the time of death on the fifth day no urine was passed. On the day of death slight uriniferous odor of the breath was noticed. The eyegrounds were examined and no changes from the normal noted. The blood pressure remained at 135 millimeters of mercury, Riva Rocci. On the fifth day after injection she became very apathetic and gradually went into complete coma. Death occurred two hours after coma developed.

Autopsy:

Anatomical Diagnosis: Evidences of severe intoxication; chronic interstitial nephritis, with proliferation of the tubular epithelium, and extreme cloudy swelling; slight necrobiosis, cloudy swelling and fatty change in the liver; mitosis and amitosis of the liver cells; hypostatic congestion of the lungs; acute splenic tumor; cloudy swelling and slight fragmentation of the myocardium; edema of the left ankle; right leg amputated at the upper third; three ulcers on the amputated stump (probably luetic).

The body, that of a well developed, very well nourished woman, shows marked rigor mortis and slight postmortem staining in the dependent portions. The skin and the superficial lymph glands are not noteworthy. The eyes are slightly sunken, pupils moderately dilated, concentric and regular. There is no enlargement of the thyroid. The thorax is well formed. The abdomen is rounded. External genitalia are normal. The right leg has been amputated about the middle third, and on the stump are three ulcerating areas covered with a yellowish-white, purulent material. The edges of the ulcers are of a deep red color, and granular. The left lower extremity is edematous about the ankle.

Upon section the abdomen and chest show nothing remarkable. The liver extends four centimeters below the costal margin in the midclavicular line. The other organs lie in their usual positions.

The pericardium is thin and smooth and without adhesions. There are about 30 ccm. of a clear, yellowish fluid in the pericardial sac.

The heart weighs 320 grams. The myocardium is of normal appearance. The valves are thin and competent; coronary arteries are thin-walled and patent; and the foramen ovale is closed.

The aorta is elastic and thin-walled. Near the exit of the larger branches there are a few atheromatous plaques.

The lungs, with the exception of a slight edema of the dependent portions, show nothing remarkable.

The liver weighs 1565 grams. The organ is soft and flabby, and has a doughy consistence. The edges are slightly rounded and thickened. Through the capsule the liver has a uniform light yellow color. Lobula-

tion on the surface cannot be seen. On section the liver cuts easily, with a doughy resistance. The cut surface is cloudy, and the markings are rather indistinct. The lobules can just be made out, their central portions being of a lighter color than the periphery. Vessels and bile ducts show nothing remarkable. There is no increase in fibrous tissue. The gall bladder is filled with a light yellow, rather thin bile; its ducts are patent.

The spleen weighs 320 grams. The organ seems swollen; its capsule is thin and very tense. On section, the pulp is of a grayish-purple color, and very friable. The Malpighian corpuscles are not to be seen. The trabeculæ are delicate. Vessels are not unusual.

The pancreas shows nothing remarkable.

The left kidney weighs 175 grams. Perirenal fat is abundant, and quite fibrous. The capsule is thickened, and through it the kidney parenchyma appears of a grayish-red color. It strips with a slight increase in resistance, leaving a finely granular surface, on which there are small, irregularly shaped, red areas, varying in size from 0.5 to 2 millimeters in diameter. On section, these areas are found to be confined to the extreme cortex (subcapsular hemorrhages). The stellate veins are quite distinct. The organ cuts with a slight increase in resistance. There is a slight bulging of the parenchyma. The cut surface has a grayish-purple color, and is very cloudy in appearance. The cortex is fairly well differentiated from the medulla, and considerably narrowed. The glomerular rows are distorted. The individual glomeruli can just be seen as elevated points. The vessels of the pyramids are prominent and radiate well into the cortex. The pyramids and calyces show nothing remarkable. The mucosa of the pelvis is pale. The ureters and vessels show no abnormalities. The right kidney weighs 180 grams. On external inspection and on section, it shows the same findings as the left.

The adrenals appear normal.

The esophagus and stomach show nothing unusual.

The intestines are slightly distended with gas. There is a small amount of fluid fecal contents in the descending colon and rectum. The vessels of the serosa are not injected and the mucosa is pale.

Uterus, tubes and ovaries show nothing abnormal.

Permission for the removal of the brain and spinal cord was not obtained.

Microscopical Examination:

Heart: The cells of the myocardium are slightly swollen and rather cloudy; striations are quite distinct and the nuclei stain normally. In some places there is marked fragmentation. The pigment lying at the nuclear poles is considerably increased.

Lungs: The alveoli contain a few desquamated cells, and acidophilous, homogeneous material.

Spleen: The capsule is thin, the trabeculæ delicate, the Malpighian bodies small and not well defined. The latter are composed of the usual lymphocytic elements. The dilated sinuoids contain a few lymphocytes and polymorphonuclear leucocytes, but mainly red blood cells. The eosinophiles are slightly more abundant than usual. No unusual proliferation of any element is found.

Liver: The capsule is thin. The lobules are of usual size and arrangement. The interlobular connective tissue shows a slight increase. The central veins are not distended, and they contain a few erythrocytes, and an acidophilous, foamy material. The capillaries in the central part of the lobules are dilated and contain a similar material. The parenchymal cells in this region are quite irregular in size and shape. Instead of the usual smooth, distinct margins, they are ragged and indistinct. Many of them contain a bright yellow pigment, and all show vacuoles (fat) of varying size. The nuclei vary greatly in size, shape and

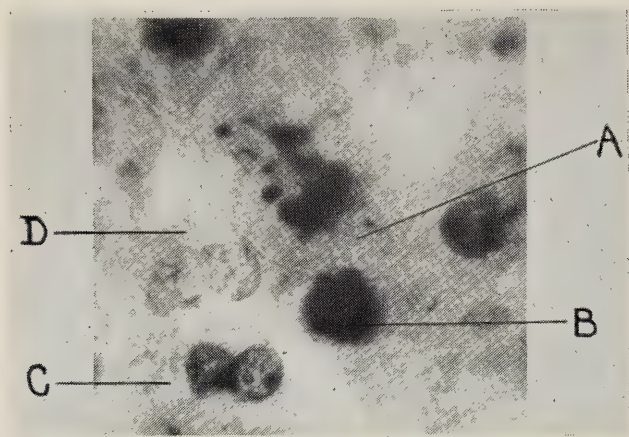


Fig. 1. Liver parenchyma. X580. A, a cell with nucleus in mitosis. B, a large hyperchromatic nucleus. C, a cell with two normal nuclei. D, a cell with two very faintly stained nuclei and degenerated protoplasm.

staining quality. In not a few cells the nuclei can scarcely be seen, and the protoplasm is quite granular; while in other cells the nuclei are large and hyperchromatic. Here and there are found cells containing three or more nuclei. These strongly suggest direct division. In other cells, and this is not limited to any particular zone, there are found cells containing mitotic figures in various stages (Fig. 1). In several fields (objective 7, ocular 4, Leitz), as many as three cells undergoing indirect division are found. These, wherever found, stain well and show no signs of injury or degeneration. The cells at the periphery of the lobules approach the normal type. They contain no pigment, fewer vacuoles, and stain well. Even in this region, however, mitotic figures are found.

Pancreas: The interacinar connective tissue is slightly increased. The acinar cells stain normally. The islands of Langerhans show no pathological changes.

Kidneys: The capsule shows a considerable increase in thickness, and here and there sends bands of connective tissue into the parenchyma. Throughout the entire kidney there is a slight, more or less patchy, increase in the intertubular elements. The glomeruli are enlarged, and their lobulation is more distinct

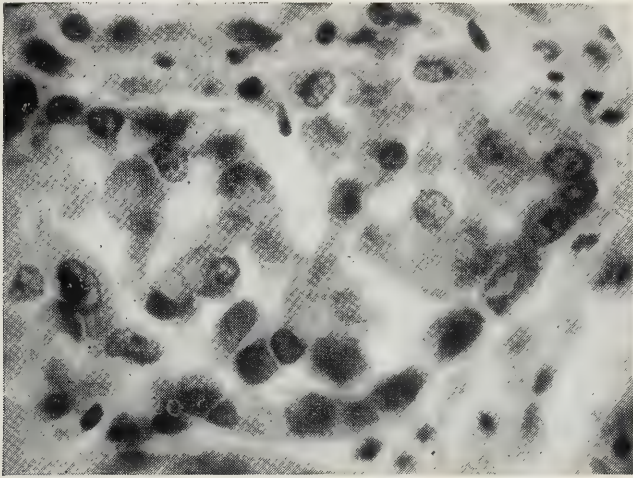


Fig. 2. X410. Convoluted tubule of the kidney, showing the lumen filled with smooth, protoplasmic, endothelial-like, desquamated tubular epithelium. The non-desquamated epithelium along the lower border of the tubule is irregular in size and shape and in staining properties.

than usual. This is probably due to the fact that there has been an increase in the fluid within the intracapsular space. Between the glomeruli and Bowman's capsule there is a small amount of a foamy, pink-staining material. The capsular epithelium is slightly swollen. The most marked change, and this is evidently

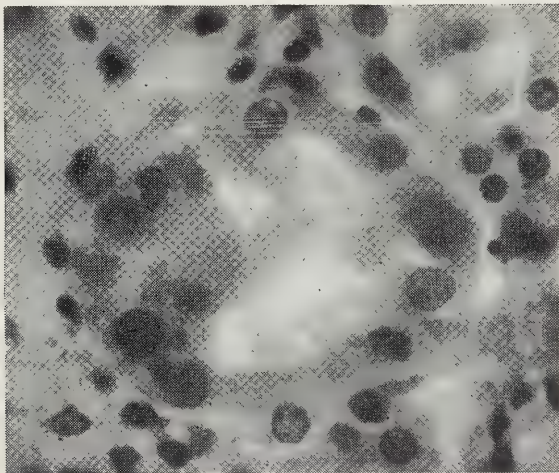


Fig. 3. X410. A tubule of the kidney showing, at the left, swollen and distorted epithelium. In the lower right hand corner a mitotic figure.

a recent process, is a proliferation of the tubular epithelium. This is most clearly seen in the convoluted tubules not far from

the capsule, although it is found in all parts of the convoluted tubules. There has taken place an enormous desquamation of epithelium, which has resulted in a partial filling of the lumina with cells in all stages of degeneration. Many of these cells are represented by globular, pink-staining, granular masses, in which no nuclear remains can be seen. In others lying closely to the tubular walls the cytoplasm is hyalin and granular, and the nuclei stain quite well. Frequently tubules are found containing proliferated and desquamated epithelial cells. These are not of the usual type of tubular epithelium, i. e., low, distinctly stratified and granular; but of a smooth, protoplasmic and endothelial-like formation; in some places they are roughly cuboidal, while in others, distinctly fusiform (Fig. 2). In a few of the tubules the epithelium is of a high cylindrical variety; even in the most normal situation the tubular epithelium shows great variation in size and shape. Multinucleated cells are of common occurrence. Fairly frequently such cells are found filled with deeply stained nuclear fragments. Occasionally syncytial, bud-like masses of protoplasm seem to push the tubular basement membrane outward. Here and there are found tubular epithelia with mitotic figures (Fig. 3). In most cases these are still attached to the basement membrane, but at times they are found free in the lumina.

Throughout the kidney there are found irregular patches of polymorphonuclear leucocytic infiltration. Where this has taken place, the cells are found both in the tubules and interstitial tissues. The vessels are only slightly congested, and the larger show a slight thickening of the walls. A careful search failed to reveal any signs of marked vascular injury. The inflammatory edema of the interstitial tissue is moderate.

The adrenals show no pathological changes and the other organs nothing worthy of note.

One of the chief contraindications to the use of salvarsan is the existence of a severe, nonleptic nephritis, but it seems that in cases of nephritis of a mild type it can be given with impunity. In a hasty review of reported cases of untoward effects of salvarsan there were found a considerable number of cases in which kidney lesions were noted. Bohac and Sobotka¹ noted in three cases suppression of urine varying from one-half to ten days. Later they stated that they did not attribute the suppression to arsено-benzol, but they did not believe it to be due to methyl alcohol, as had been offered as an explanation. The

occurrence of a nephritis after the use of the drug is not uncommon. The signs of this, however, generally disappear in a few days. Albuminuria is very frequently reported following its use. In the majority of the reported fatalities the chief symptoms are hyperpyrexia, tachycardia and a low tension pulse, nausea and vomiting, epileptiform convulsions and coma. These symptoms point to a severe toxemia.

Arsenic is the classical means of producing a nephritis of the vascular type. Among those using this drug in experimental work on the kidney may be mentioned Pearce, Hill and Eisenbrey², Helen and Spiro³, and MacNider⁴. The latter investigator has shown that arsenic produces a nephritis in which both the vascular and epithelial elements are involved; that the vascular elements are first affected; that during a slight injury the urine output is increased; and that when the epithelial changes are marked a reduction of urine or an anuria is produced.

In the case above reported evidences of a severe vascular injury are wanting, but the epithelial damage is great. The fact that with a severe damage of the renal epithelium there occurred a suppression of urine fits in nicely with MacNider's experimental findings.

Oertel⁵ states that the inflammatory hyperplasia occurs most frequently in the loops, because there stagnation of necrotic masses irritates and demands phagocytic activity. According to his observations this proliferation may occur by mitosis, but much more frequently by amitotic division. In our case, however, regenerative changes are not found in the regions of the most marked degenerative processes. It would seem that while the arsenic, if arsenic it was, had caused slight degenerative changes, it had at the same time stimulated other cells to proliferation.

Injury to the liver parenchyma not uncommonly results in a proliferation of the liver cells. This regeneration is frequently found in cases of traumatism, pressure from advanced passive congestion, acute yellow atrophy, following necrosis in certain infectious fevers, and occasionally in necrosis subsequent to septic conditions. Dunn⁶ and Meder⁷ report cases in which, with peripheral necrosis, signs of active regeneration were found. Marhand⁸, in discussing Meder's case, says that in acute atrophy of the liver, especially following septic conditions, the necrosis is generally peripheral, while the regeneration is central.

In arsenic poisoning Wolkow⁹ found that with small doses the most common result was a fatty change in the liver cells, while with larger doses necrotic foci were produced along with signs of proliferation. Mitotic figures were not uncommon and an epithelial proliferation in the bile ducts was occasionally present. He raises the question as to the cause of the active division of the liver cells, but reaches no definite conclusion. He considers that two possibilities may be involved in this process, the stimulating effect of the arsenic or a purely regenerative process after liver injury.

In our case the evidences of necrosis are slight, but the fatty change and proliferation of parenchymatous elements are striking. Many livers are found in which the fatty change is more marked, and the parenchymatous damage is far greater, without the active regeneration of liver cells being present. While in this case there has been a moderate degree of injury to the liver parenchyma, as evidenced by the fatty change and the destruction of a few isolated cells, the chief change is a proliferative one, indicating, perhaps, that there has been a primary stimulating as well as a destructive action.

Summary:

1. In a case having a positive Wassermann reaction and clinical signs of lues, after the intravenous injection of 0.5 gram of salvarsan in alkaline solution there followed an anuria which resulted in death after five days.

2. At autopsy there were found evidences of a severe intoxication.

3. The main effects are seen in the kidney and liver, which show degenerative changes and proliferation of the parenchymatous elements.

4. The pathological changes in the liver and kidney are similar to those produced in experimental arsenic poisoning.

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Hypertonic Contraction or Intermittent Closing of the Cerebral Arteries

By JOHN PHILLIPS, M. B., Assistant Professor of Medicine, Western Reserve University, Cleveland.

The purpose of this paper is to call attention to certain phases of cerebral arteriosclerosis, the symptoms of which are due to temporary vascular spasm. That definite symptoms are due to spasm of peripheral vessels was first recognized in veterinary medicine over eighty years ago, and to the condition the term "intermittent claudication" was given. It was first used to describe sudden temporary attacks of limping or lameness in a horse with pain in the affected legs, and was due to a defective arterial supply from spasm of the blood vessels. Probably the best term used to designate the condition of vascular spasm is that introduced by William Russell, viz., "intermittent closing". This I think is preferable to the name given by Pal in his excellent book, "Gefässkrisen" or vascular crises. That such intermittent closing of arteries occurs is amply proven by its presence in the local syncope of Raynaud's disease, in the vessels of the retina in quinin blindness, or in migraine. In the latter, the condition of vessel narrowing has been observed by the use of the ophthalmoscope. That vascular spasm is associated with migraine is well illustrated by the following case.

Mr. W., aged 55 years, shortly after the onset of an attack of migraine three years ago was talking to a friend at the telephone, when he suddenly began to articulate imperfectly and partially lost consciousness and would keep repeating in a loud voice, "What did I say?" Since then, he has had three attacks of migraine during which similar phenomena have been present. His radial and other accessible arteries are remarkably soft for a man of his age and at no time has his systolic blood-pressure been above 140 millimeters.

Cerebral arteriosclerosis may be a part of a general arterial thickening or it may exist with little or no demonstrable change being present in the other arteries. Thus the vessels of the brain may be tortuous, hard and studded with miliary aneurysms with very little change to be made out in the vessels of the trunk or extremities. The pathological changes are the same as in the vessels of the trunk or extremities. All the arteries in the substance of the brain are "end arteries", each terminating within its area of distribution without communicating with branches of its neighbors. In consequence of this, a blocking of any of the arteries or its branches leads to a destruction of the area supplied by it, while a temporary closing would lead to a temporary loss of function. In most cases, however, if the attacks of intermittent closing of the cerebral arteries have been frequent there is evidently some destruction of brain substance with permanent loss of functions.

There is some evidence which points to the existence of cerebral vasomotor nerves which ramify over the pial vessels. The primary function of the muscular wall, however, is to maintain tone, the exciting cause of the tonic condition being probably the pressure and quality of the blood. The vasomotor nerves, if present, increase or inhibit the excitability of the muscular wall. It is not necessary, however, to assume the existence of vasomotor nerves to account for vascular spasm. It has been definitely proved that certain drugs passed through a vessel, from which all nervous connections have been severed, may cause its contraction, so that cases of vascular spasm may be due to the presence of circulating toxins in the blood. The splanchnic vasomotor mechanism is of overwhelming importance in maintaining the cerebral circulation. When excitation from the outside world demands cerebral activity, the amount of blood in the splanchnic area is decreased and more blood is driven through the brain. An anemia of the brain excites the bulbar centres; these provoke acceleration of the heart, splanchnic constriction, and increased respiration; the cerebral circulation is thereby restored. The vasomotor mechanism of the brain, if it exist, is not powerful, but its blood supply can be controlled indirectly by the bulbar centers acting on the splanchnic area.

The causes of arteriosclerosis are many and varied. No two individuals have the same resistance to poisons circulating in the blood. In some the arterial tubing with which they start life

is poor. In other cases the arteriosclerosis may be the result of old age, occupations which involve prolonged mental and physical strain, or exposure to such poisons as lead. It may be the result of acute or chronic infectious diseases. Thayer has shown that arterial thickening is common in patients who have recovered from typhoid fever. Syphilis is a very important factor in the development of arteriosclerosis. Among other causes that may be mentioned are overeating, with excessive use of tea, coffee or tobacco. The latter I am inclined to think is an important factor in vascular spasm. We have long known that its use may excite an attack of angina pectoris. Green, from observations made on himself and a friend, found that inhalation of the smoke of a cigarette made of Virginia tobacco caused a distinct hypertonic contraction of the radial artery. It is early in the course of an arteriosclerosis that arterial spasm is most frequently seen and it is almost always associated with a high blood-pressure. That constipation is an important factor is well illustrated by the following case.

The patient, a lawyer aged 68, of exemplary habits, had always attended very closely to his business, which involved considerable mental strain. Six years ago he had a fainting spell, after which he took a prolonged rest. In July, 1911, he had an attack of angina pectoris, following which he remained in bed for one week. From that time until the first of October, 1911, when I saw him, he had no discomfort except some shortness of breath on exertion. At that time he looked pale but well nourished. There was some thickening of all the arteries accessible to palpation and his systolic blood-pressure was 175, the diastolic 130. His heart was slightly enlarged to the left; there was nothing abnormal about the heart sounds except an accentuation of the second sound in the aortic area. He was advised to go to his office only two hours a day, to eat sparingly, keep his bowels moving freely and to have massage three times a week. Three times daily, three drops of a 1 per cent solution of nitroglycerine was ordered. He got along unusually well until January, 1912, when he had six attacks within one week of transient paralysis of the right arm and leg, with loss of the power of speech but with no loss of consciousness. The longest duration of these attacks was one hour. Physical examination at that time revealed the same conditions described above and his blood-pressure was the same. His urine was light colored, specific

gravity 1010, and showed a faint trace of albumin and an occasional hyalin cast. His bowels during the week preceding these attacks were very constipated and remained so for about a month. During the next two weeks he had four spells of the same character. On the 5th of February, following a large dose of calomel and a saline cathartic he passed a large amount of fecal material that contained considerable "intestinal sand". Seven months have elapsed since then, his bowels have moved freely and he has not had another attack.

It is very difficult to describe all the symptoms that one sees in cases of cerebral arteriosclerosis. Often, for a considerable period preceding the attacks of cerebral arterial spasm, there are noticed the usual symptoms of cerebral arterial disease. In other cases the patient has been in perfect health. We are too prone to consider all nervous symptoms that manifest themselves in a patient with arteriosclerosis as being due to affection of the cerebral arteries. In some patients headache, vertigo and insomnia, and irritability are complained of. Very often indeed the patient is looked upon simply as a neurasthenic. A very common complaint is progressive loss of memory, especially for recent events. Then after some indiscretion of diet, mental worry, severe physical exertion or from constipation, the symptoms due to intermittent closing of the cerebral arteries may manifest themselves—"larval apoplexies", as Albutt chooses to call them. There may be only a period of momentary unconsciousness after which the patient will say "Where am I?" or "Oh, yes, that is all right." There may be as many as thirty of the attacks in twenty-four hours. In other cases, there are noted monoplegia, hemiplegia or aphasia. At the onset of these attacks there may be an epileptiform convulsion. The blood-pressure is usually elevated. The following two cases illustrate well the character of these attacks.

Case 1: Male, aged 61. A laborer came to the Dispensary of Western Reserve University and Lakeside Hospital in October, 1909, complaining that since April he has had several times a week and occasionally several times daily attacks either of loss of speech alone, or of loss of speech with paralysis of right arm and leg. Consciousness is not lost during the attack and he can foretell its onset by the fact that his right leg draws up suddenly and then becomes weak. He has time to get a chair and sit down. He denies venereal infection. On physical examination

a marked arcus senilis was noted. The heart was enlarged so that the left border extended two centimeters outside the nipple. The heart sounds were normal except for accentuation of the second sound in the aortic area. The arteries were thickened. His systolic blood-pressure was 212. After eight drops of spiritus glonoini it dropped to 158. His urine was clear, specific gravity 1017, and showed a very faint trace of albumin but no casts. He was given light diet, warm bath daily, free saline catharsis, nitroglycerin, and potassium iodid. This treatment was continued for two years and during that time he has had only eight mild attacks. His systolic pressure has averaged about 175. After treatment for two years the patient stopped coming to the clinic. The nitroglycerin seemed definitely to prevent the attacks, as he only seemed to have recurrences when he would neglect to take his medicine.

Case 2: A business man aged 68 years has had some hardening of his arteries with high blood-pressure for the past twelve years and during the greater part of this time has taken nitroglycerin. He has had several attacks of aphasia with right sided hemiplegia which last from a few minutes to one-half hour. During the past three years there has been some mental impairment and difficulty of articulation. With his vascular spasm there is always a very high blood-pressure. In one of these attacks in July, 1912, his systolic blood-pressure was 280 and with twelve drops of spiritus glonoini it fell to 140. A month later he had another cerebral vascular crisis ushered in by a convulsion. A remarkable feature of the case is that the nitroglycerin, though taken over a period of twelve years, never seems to lose its effect and is just as efficient in controlling the high blood-pressure as when first used.

In many cases there is evidence of hypertonic contraction of other vessels, such as the coronaries with its accompanying angina, the messenteric arteries with abdominal pain, or the vessels of the extremities with cramps.

The differential diagnosis in these cases is not difficult. A sudden hemiplegia is caused by hemorrhage, embolism, thrombosis or temporary closing of the cerebral arteries. The first three cause destruction of brain tissue with loss of function. The last causes an impairment of function in the part of the brain affected—a halting of brain function from the closing of the channels which convey the blood, a condition comparable to

intermittent claudication. Therefore, the transitory character of the hemiplegia is the striking feature in cases of vascular spasm.

The prognosis is that of arteriosclerosis in general. Attacks of vascular spasm serve as a warning that there must be a decided change in the patient's mode of life to avoid disaster.

In the treatment it is very important to individualize. The laboring man should not be treated the same as the financier. As soon as high blood-pressure is detected the habits, mode of life, every detail should be studied carefully. In the way of prophylaxis for the business man first and foremost is exercise of a mild character which gives him companionship and outdoor life. No form of exercise so admirably fits these requirements as golf. The blood courses more rapidly through the lungs and muscles; the contraction of the latter serves to compress the veins and this aids the return of blood to the heart; the lungs are rendered hyperemic, deeper and fuller breaths are taken; oxidation is necessarily more rapid, and waste products, which if not completely oxidized would probably act as vasoconstrictors, are oxidized to harmless products and eliminated without irritating the excretory organs. It is important too that the business man should take at least one month of quiet vacation each year. Moderation in everything should be the rule and this should especially apply to eating and drinking. The diet should be simple, resembling that of a child of three or four years. The patient should take a warm bath daily and the bowels should move freely at least once a day. Plenty of sleep with freedom from worry is important. Tobacco should be used with great moderation.

When once arteriosclerosis is established the best we can hope for is to check its advance. The iodids have long been used and probably owe their popularity to their successful employment in syphilitic cases. They seem to be of most value in those patients where headache and precordial pain are the predominating features. Thyroid extract has given good results in the hands of some clinicians. For the cases with marked hypertension, and this applies also to the cases of vascular spasm, the most effective treatment is rest in bed, free purgation, sweat baths, venesection and the administration of nitrites. It is important to work out the dose of nitroglycerin for each case, checking the blood-pressure with the sphygmomanometer and

giving a sufficient number of drops of spiritus glonoini to reduce the tension. In the last two cases reported the drop in systolic blood-pressure was 54 in one case and 140 in the other. The dose that should be continued then should be sufficient to keep down the blood-pressure and without giving the patient an unpleasant headache. I believe that many of the failures to get reduction of pressure from nitroglycerin are due to the fact that too small doses are given. One must recognize, however, that a high blood-pressure is not so harmful and that it is only a symptom and yet in cases of vascular spasm with abnormally high blood-pressure it is very important to give vasodilators. For the nervousness and anxiety which are so often distressing features in these cases, twenty to thirty grains of sodium bromid four times daily can be given with great benefit.

The Care of the New-Born Infant—A Review of the Progress in Pediatrics

By HELEN HEMPSTEAD, M.D., Cleveland

Much of interest concerning the care of the new-born child is being written by the men in charge of large obstetrical clinics, who claim that they are the ones who really see the child in its earliest stage before the pediatrician sees it. A short review of the present recommendations for the care of children in the first weeks and of some of the problems of this period may be of interest.

It is claimed by one eminent obstetrician that everything which comes in contact with the discharges from the mother, also the hands of the mother and of the nurse, are dangerous to the new-born child. Therefore, the mother's hands should be washed before each nursing and the nurse's hands should be washed and treated with alcohol and antiseptics for several minutes after caring for the mother. The danger of infecting the child from its stools must be obviated by having the nurse wash her hands after caring for the child. Since it is almost impossible to prevent injury to the epithelial surface of the mouth in washing the mouth, with the chances that infection may follow, it is not wise to wash the new-born baby's mouth. It is recommended that the cord be tied a second time one and one-half centimeter from the skin after the baby has had a bath and that the cord be then completely cleaned with strict asepsis. An

apron bandage is used because of its greater cleanliness than the older bandage about the body. The child is put to the breast two to eight hours after birth, as this is better for both mother and child.

Concerning the number of feedings a breast-fed child receives, there is much variation of opinion and custom. In France, Italy, and North America, it is the custom to give eight to ten meals in the twenty-four hours. The intervals between feedings are gradually lengthened, until the sixth month there are six meals. In Germany, the physicians have succeeded in reducing the number of meals to five, or at most six, in the twenty-four hours, and as soon as possible there is a night interval between feedings of six to eight hours. Keller believes that five meals per day during the first year are sufficient for well and sick children and that more frequent feedings are harmful. By observing well babies on the second or third day there was a desire to nurse but three or four times, and on the following days when the milk has come there were five, or at most six, meals desired in the twenty-four hours. Occasionally a seventh meal is advised. Czerny, in Prague, made observations of the same kind and recommended but five meals. Many children were observed who prospered on five meals from birth. He found that in general the size of the meal is only little changed, whether the child takes four, five, six or seven meals in the twenty-four hours, and that the variations in quantity from day to day are as great if the child regularly for several weeks takes the same number of meals. He recognized as a normal increase in weight for the first month, twenty-five to thirty grams a day, and that the birth weight in breast-fed children should be attained by the eighth to tenth day if the milk is not unusually delayed. He believes a gain of fifty to sixty grams a day is not desirable. Marfan recommends eight meals with two and one-half hour intervals. If the mother has little milk he makes the feedings come every two hours in order to help start the milk. Budin gives eight to ten feedings during the first week. Rietschel believes that in cases of premature children or where there is little milk, there should be eight feedings, and after the second, or at latest, third week there should be four hour intervals during the day and an eight hour night pause. In cases in private practice and with good conditions, he believes in the four hour interval. It has been recently established that no important difference exists

between cow's and human milk in the length of their sojourn in the stomach, which is two to two and one-half hours in each case. A longer delay depends on the fat content, quantity and in cow's milk on the dilution.

As to the digestion, the number of stools is considered by some to be of more importance than their appearance. The number is decreased by undernourishment. In cases of over-feeding and in cases of catarrh there is mucus in the movement, which is of the so-called "squirting" variety. In light cases the stool is green, with white flakes (falsely called casein curds, but in reality soap flakes) and mucus. In severe cases (enteritis) the stools are thin, watery, squirting, yellow-green, with much mucus and fat drops.

In the new-born, fever of a transitory nature is now recognized. The relatively high temperature of the child during or immediately after birth of 37.5 to 38 degrees falls 1.5 to 2 degrees during the first two to six hours, and then slowly rises. During the first week the temperature varies 0.7 to 2 degrees and this lability must be considered physiological. A temperature of 38 degrees in a normal child at ordinary room temperature and with ordinary dress must be considered abnormal. Often in the middle of the first week (second to fifth day) there is fever, which subsides after a few hours to two or three days. Sometimes the children with this fever cry much; others are weak or drowsy or they may have little appetite. Physically, nothing abnormal is found. Stools are normal or are "hunger stools." Formerly this fever was called a sign of infection. Now the fevers due to disturbances from nourishment are considered aseptic. The fever may be due to a change in the intestinal flora from the meconium flora to the milk flora. Germs in the intestine or their toxins may cause the fever. Winkelstein has described an alimentary fever due to biochemical-physical influences, and this transitory fever of the new-born may be of the same nature. The intestinal wall in the first days is supposed to be permeable to high molecular colloidal substances. Holt has described this fever as "inanition fever". He understands the condition as essentially the same as that which Erich Miller calls "thirst fever" and Heim and John call "salt fever". These fevers were described as due to concentration of tissue juices. The organism being in a condition of thirst, there results a disturbance of the physical warmth regulation with a diminution of the insensible

perspiration. When water is given this type of fever disappears. It has been proven recently that the concentration of tissue juices alone may not cause fever and that in sodium chlorid fever there is no lessening of the insensible perspiration. It has been suggested that the fever is a symptom of autointoxication, as the products of protein destruction or even of a nitrogen-free substance as salt may, in their passage through the kidneys, cause fever.

Nothing very definite is known as to the origin of this transitory fever in the new-born. One or several of the above suggested factors may be its cause. It should be recognized, as the prognosis is always favorable, the fever soon disappearing without further consequences. The therapy is entirely symptomatic. No medicines are necessary. Luke-warm baths may be given and the same feeding used as in nonfever cases.

Anterior Poliomyelitis*

By E. F. FREEDMAN

Synopsis:

Introduction.

Historical.

Symptoms, pathology and incubation period.

Transmission to monkeys.

Modes of infection and portal of entry.

Etiology; nature and properties of the virus.

Immunity.

Production of a serum.

Prophylaxis.

Conclusion.

Introduction: The term "acute anterior poliomyelitis" indicating, as it does, an acute inflammation of the anterior cornua of the gray matter of the spinal cord is not in accordance with the disease under consideration, for it has been amply demonstrated that the lesions are not confined to the anterior horn and not necessarily to the spinal cord. However, the Bureau of Census urges its adoption, probably for want of a better name.

The term infantile paralysis is objectionable, because it is hardly applicable to adult cases, in which the disease is also

*A thesis submitted as part of the required work, in hygiene, of third year medical students of Western Reserve University.

prevalent. Other terms in general use are: acute poliomyelitis, epidemic poliomyelitis, acute spinal paralysis, essential paralysis, and a number of others. In the German literature the name "Heine—Medinsche Krankheit", is frequently encountered.

Historical: The actual founder of the doctrine of acute poliomyelitis in children is thought to be Jacob von Heine, an eminent German physician. In 1840 he gave the first clear clinical description of this affection. However, some cases were described prior to Heine, by Underwood in 1784, by Shaw in 1822, Bedham in 1835 and some others; but knowledge concerning this disease was limited, and the differentiation between this paralysis and other spinal paralyses had not been established. Heine's work started an epoch which was followed by numerous discussions and during the years which followed a number of works were published, among whose authors were the noted Barthex, Kennedy, Vogt and others. The discussions which followed brought out many points in the disease. It was observed that certain parts of the body were paralyzed, and that when recovery took place these parts usually recovered somewhat but there always remained some deformity. This led to the conclusion that some part of the central nervous system had suffered beyond repair. In 1860, von Heine presented another paper in which he declared that the seat of the disease was in the spinal cord. He also believed that the lesion was in the gray matter of the cord, but this was not accepted.

In 1863, Cornill first discovered alterations in the cord itself, but it was not until 1865 that Privost and Vuljian made positive observations that the injury was in the cells of the anterior horn in cord. That there was destruction of some cells was observed by Charcot and Joffroy in 1870.

The epidemic occurrence of the disease was not recognized till 1881, by Bergenholz. His observations were not published till 1890, when Medin published them. Medin also reported his own observation on forty-three cases which occurred in Stockholm in 1887. Since then epidemics have been observed with increasing frequency. The larger epidemics have been as follows: In Vermont, 1894, 126 cases; Norway and Sweden, 1905, 1,500 cases; New York, 1907, 2,500 cases. From 1907 to 1910 outbreaks occurred in this country as follows: Connecticut, 1910; District of Columbia, 1910; Florida, 1907; Illinois, 1909; Iowa,

1908 and 1910; Kansas, 1907 and 1910; Massachusetts, 1907-8-9-10; Minnesota, 1908-9-10, and other States.

Since the severe outbreak in Sweden in 1905, epidemics have occurred in practically all parts of the world. Lowett calls attention to the fact that the United States has suffered more severely than other countries, being credited with 5,500 out of 8,000 cases which occurred from 1905 to 1909. It naturally follows that the increased prevalence of epidemic myelitis, with the consequent stimulation of interest therein, should have resulted in many valuable additions to our knowledge of the subject. However, the greatest and most valuable results concerning epidemic poliomyelitis have been derived from the study of the disease experimentally produced in monkeys. It had been recognized for some years prior to 1909 that acute poliomyelitis must be due to some specific infection, and quite a number of observers had isolated from the nervous system of patients suffering from the disease bacteria which they believed to be the specific causative agent. However, the bacteria found by different observers belonged to different species, and the inoculations of animals by such bacteria produced lesions which did not correspond to those of human poliomyelitis. Consequently none of the above claims was accepted. In the spring of 1909, Landsteiner and Popper published an account of a successful inoculation of two monkeys with the spinal cord derived from a case of infantile paralysis in a child. They used the intraperitoneal method. However, they could not effect this transmission of the disease on a second trial. They also failed to transmit the disease from the infected monkeys to other monkeys. In August, 1909, Flexner and Lewis succeeded in confirming the work of Landsteiner and Popper and furthermore succeeded in transmitting the disease from monkey to monkey through an indefinite number of passages. Since then a great deal has been done on this subject by Flexner and Lewis, Römer and Joseph, Landsteiner and Levaditi, Leiner and Weisner and others.

Symptoms: In order that the experiments on monkeys may be better understood and appreciated, the symptoms, as they appear in infected animals, may be briefly reviewed:

- 1, There is a state of undue nervousness and excitability on the part of the inoculated monkeys.
- 2, There is an inability to fix the gaze, with which is associated a wrinkled and mobile rather than smooth and placid cast of countenance.
- 3, Erection

of the hairs over the body. These symptoms are most marked for a period of eight to ten hours before the onset of the paralysis. 4, The onset of the paralysis, either when the prodromal symptoms have occurred or when they have been absent or undetected, tends to be sudden. 5, The paralysis affecting any of the larger groups of muscles of the extremities tends to be accompanied with other weak or partially paralyzed muscles. 6, In certain animals the medulla was first affected and the animal died before the development of actual paralysis. 7, With regards to location, the extremities were affected oftener than the muscles of the trunk and spinal paralysis was more frequent than cerebral. 8, Sensory disturbances occurred but were not always present. 9, The experimental disease is fatal in about 50 per cent of cases, while in man in rarely over 10 per cent.

Pathology: The virus first attacks the meninges, especially of the cord and medulla, setting up a cellular inflammation of the pia. These changes are most marked around the blood vessels. The walls of the vessels are infiltrated and their lumina narrowed. As a result there is anemia, edema, and hemorrhage, the latter sometimes small and sometimes extensive.

But more important is the degeneration of the ganglion cells, the site of which is determined by the vessels involved. Therefore, the lesions in the pons, medulla and cord are secondary to those of the blood vessels in their vicinity.

The nerve cells once destroyed, never regenerate. The transient paralysis, as is the case in diphtheria, is due to the edema or temporary vascular obstruction from pressure outside the vessels causing a local anemia. Those nerve cells which are destroyed, are replaced by leucocytes and connective tissue cells. The most marked lesions are in the cord, but they may be in any part of the central nervous system. The efferent nerve roots degenerate to the muscles and the muscles themselves atrophy and in extreme cases the whole muscle may be replaced by fibrous tissue. When recovery takes place and the congestion of the vessels is removed, the edema disappears and those nerve cells which suffered from anemia usually recover. The patient may recover entirely if only few nerve cells have been completely destroyed. Total recovery may take place in from six months to three years. Besides the nervous system, the lymph glands are also involved, as shown by Flexner only a short time ago. The tonsils and adenoids are enlarged as is the thymus. The

mesenteric lymph glands, as well as all the other lymph glands of the body are increased in size. The lymph glands are not only enlarged, but they contain the virus.

Probable Incubation Period: The incubation period means the interval elapsing between the time of inoculation and the appearance of the just definite paralysis, which incubation period includes certain manifestations which have been noted as prodromal symptoms. The shortest period noted as elapsing between the inoculation and the onset of paralysis has been three days while the longest was thirty-three days, the average being eight to nine days.

Transmission to Monkeys: Reference has already been made to the first experimental transmission of the disease to monkeys by Landsteiner and Popper in 1909 and to the successful passage of the disease from one monkey to another by Flexner and Lewis. From the careful and detailed work of the latter investigators the following conclusions are to be drawn:

1. It was possible to transmit from monkey to monkey typical anterior poliomyelitis by means of the filtrate of the nasopharyngeal mucous membrane of two monkeys, dying without other discoverable lesions. This inoculation was possible respectively six weeks and five and one-half months after the acute stage of the disease had occurred in the latter animals.

2. It was impossible to transmit the disease from monkey to monkey by intracerebral injections of cord and brain emulsion of recovered subjects, or of filtrates of the nasopharyngeal mucous membrane of a monkey apparently in good health, which had received a previous inoculation of an active virus and which presented only questionable prodromal symptoms.

3. The virus of poliomyelitis is contained in the nasopharyngeal mucous membrane of inoculated monkeys. This membrane may be regarded, therefore, as a probable source of infection in man. The virus had been previously demonstrated only in the membranes of recently inoculated monkeys. The experiments of Flexner and Lewis indicate that the virus can be present in a viable and infectious state in the nasopharyngeal mucous membrane of the monkey for several months after the acute stage of the disease has passed.

4. There has been no case noted of transmission from monkey to monkey except by direct inoculation, although the closest

association during the acute stage has been maintained, by contact and by the use of the same feeding utensils and material.

5. In monkeys the virus passes from the central nervous system to the pharyngeal mucous membrane.

6. Observations indicate that monkeys successfully inoculated become in some instances positive carriers of the disease even after apparent recovery.

7. An attack of experimental poliomyelitis protects against further infection with the disease. If such an immunity exists, it is probably due to the antibodies present in the blood of the immune monkey.

8. No form of therapeutics seems as yet to have any influence on the disease. Hence, it follows that it is a self-limiting disease as are many other infections. At present we must view this condition of self-limitation as being determined by the elaboration within the body under the influence of the virus of the disease of substances of the nature of antibodies, the so-called immunity principles.

Modes of Infection and Portal of Entry: The intracerebral mode of inoculation is the most successful, but by no means the only mode. Experimental study has shown that the virus may be introduced into the body by the way of the peritoneal cavity and in several other ways; for example, by means of the general circulation, the subcutis, the spinal canal, large nerves and certain mucous membranes. Thus the introduction of large quantities of virus into the stomach will produce the disease, providing peristalsis has been checked by means of opium. However, it would appear that none of the avenues mentioned leads so uniformly to paralysis as does the direct intracerebral injection. There exists, however, one mucous surface that is more readily traversed by the virus than the other avenues excepting the brain, namely the mucosa of the nasopharynx. If this mucous membrane is slightly scarified and virus rubbed into the scarifications, infection and paralysis usually result.

The facts just given, concerning the possible portals of entry of the virus of poliomyelitis, have significance with respect to the usual portal of entry in spontaneous infection in man. We are led by certain theoretical and practical considerations to view the nasopharynx as the location in the body to be regarded as the portal of entry of the virus. In favor of this view are the resemblance of the infection to that of epidemic meningitis and the

occurrence of the virus in the mucosa of the nasopharynx more often and in greater amounts than in any part of the body except the brain. We are disposed to the view that the nasal mucosa not only serves as a portal of entry for the infection, but also as a path of elimination into the external nature, since such elimination is necessary in order that the virus be maintained alive and transmissible.

It is a well known fact that there exists a definite relation between the nasal mucosa and the meninges, by way of lymphatics which pass with the filaments of the olfactory nerve through the cribriform plate. That the meninges may be infected by this route has been shown experimentally. Hence, it would appear as though all the theoretical conditions required to establish the nasal and meningeal route as a direct one for infection in poliomyelitis had been supplied by experiment.

Of contact as a factor in transmission little can be said, for the simple reason that it is always hard to trace contact between cases. In reckoning the chances for contact, account must be taken of neighbors, playmates, visitors and schoolmates. Here it is also well to mention the public drinking cup, which has been blamed for transmitting all sorts of diseases, for the transmission of which we could not account otherwise.

Food and water supplies have quite generally been eliminated as probable sources of general infection, although Wickman cites a group of cases apparently infected by their common milk supply. The occurrence of epidemic poliomyelitis in the hot, dry, dusty season has given rise to the surmise that dust may be in some way a factor in the spread of the disease. This supposition has been strengthened by the grouping of cases along dusty thoroughfares and by the cessation of several epidemics shortly after rainfall. Other observations in support of the causative relation of dust to the disease are the greater incidence of the disease among children at the age when they are likely to crawl and play in dust. Also favoring the relation of dust to the disease is the fact that most epidemics occur in the summer months, rather than in the winter. However, all these factors are not sufficient to establish the relation of cause and effect.

Concerning other factors, such as insects, sewage disposal, paralysis of domestic animals, general hygienic conditions and previous health, it can only be said that, so far as we now know, none seems to have any direct influence in determining infection.

Etiology, Nature and Properties of the Virus: The proof that the causative agent of epidemic poliomyelitis is a living organism is furnished by its demonstrable multiplication or reproduction in the body of an inoculated animal, reproduction being properly confined to living organisms. A comparatively small amount (0.5 ccm of a 5 per cent emulsion) of the spinal cord of a person who has died of epidemic poliomyelitis, injected into a monkey, is sufficient to produce the disease in the animal after an incubation period of three to thirty days. This effect might be ascribed to the action of either a living organism or of a chemical poison (toxin). In the latter case, the toxin must undergo great dilution, since portions of the central nervous system remote from the site of inoculation have been found capable of reproducing the disease in other monkeys. After a very few passages, the amount contained in, say 1 gram of spinal cord would be inconceivably small and the potency of the cord in causing the disease proportionately diminished. As a matter of fact, Flexner and Lewis have succeeded in transmitting the disease through a series of at least twenty-five monkeys, using at times quantities of virus as small as 0.01 to 0.001 ccm. From one monkey, inoculated with a minimal dose of the virus, enough virus can be obtained to reproduce the disease in at least twenty-five monkeys. The multiplication of the virus is, therefore, enormous.

In spite of the fact that the organism cannot be isolated in pure culture, as can the bacteria, a great deal of quite definite knowledge concerning it has already been acquired through the experimental work on monkeys. It is known to be an exceedingly small organism because emulsions of virulent spinal cords are still infective after filtration through a Berkefeld filter, the pores of which are so small that no known organism can pass through them. This organism belongs, therefore, to the class of so-called "filtrable viruses", other examples of which are the organisms of yellow fever, rabies, hog cholera, etc.

It is not visible in preparations made by the usual bacteriologic methods, nor can it be seen unstained by the use of dark-ground illumination. It will not grow on ordinary media. The virus is killed by a temperature of 45° to 50° C. in half an hour; also by comparatively weak disinfectants, such as 1 to 500 potassium permanganate solution, 1 per cent menthol in oil, and 1 per cent hydrogen peroxide. It is not destroyed by very low

temperature, nor by drying over caustic potash for a considerable time. It can be kept for a very long time in pure glycerine without losing its virulence, resembling in this respect the virus of rabies, vaccinia, etc.

Immunity: Experiments have been conducted to determine the kinds and degrees of immunity which are produced by the inoculation of the virus of poliomyelitis. Since in the literature of anterior poliomyelitis it was impossible to find any mention of reinfection, it can be inferred that a second attack of the disease is rarely ever suffered by an individual. Two possible reasons can be assigned for this, according to Flexner. The first and most probable is that one attack, as is the case with some other acute general infections, tends to afford an enduring immunity. The other reason is that, as epidemics have in the past occurred infrequently and reappeared after long intervals, the children once affected have passed beyond the susceptible age period at the time of the next epidemic.

Attempts at reinfection of monkeys which have recovered from an undoubted infection have been made several times by Flexner and Lewis with negative results. These monkeys are not rendered perceptibly sick by the subsequent inoculation after the one originally producing paralysis. It is interesting to note that, in point of severity, the first attack in these apparently immune monkeys varied between mere tremor of the head, partial paralysis of one limb and complete paralysis of one or all limbs. These results indicate what will probably be found to be equally true of human beings, that an undoubted attack of poliomyelitis, even when unaccompanied by definite paralysis produces a state of immunity that endures for months and probably for years, if not throughout the life of the affected individual. On the other hand, experiments on a great number of monkeys establish that when the virus is introduced into the brain, practically all monkeys are subject to infection, although they do not invariably succumb to the first inoculation but may require a second injection. However, it would still appear that rare monkeys are highly refractory to infection, and it has also been observed that an unsuccessful inoculation of the virus does not act as a protective, but leaves the animals either with their original degree of susceptibility unimpaired or somewhat more disposed to subsequent infection.

This latter point of the failure of an unsuccessful intracerebral inoculation of the virus to increase resistance does not answer negatively the question, whether by suitable means it may not be possible to develop an active immunity independently of the production of even the most trifling symptoms that might be taken to indicate an attack of poliomyelitis. Flexner and Lewis have been successful in establishing in a certain number of monkeys a state of active immunity through a single large subcutaneous injection of the crude or modified virus, as represented by the emulsion of the spinal cord taken from recently paralyzed monkeys, or by repeated injections of gradually increased amounts of the crude virus. Monkeys thus directly immunized resist successfully the injection of large doses directly into the brain. This mode of producing active immunity has not up to the present time developed into a uniformly successful and safe method, since of the treated monkeys some do not develop a strong immunity and others develop a paralysis as a result of the treatment. At present the experimental basis is entirely inadequate to justify the attempt to induce active immunity as a protective measure in human beings.

It has been established that an undoubted and even high degree of immunity to infection follows recovery in monkeys and probably equally well in human beings. The question which now arises is this: As a result of this immunity, do the body fluids acquire new properties, capable of experimental demonstration, on which the immunity probably depends? In answer it can be stated that human beings and monkeys who have passed through the attack of poliomyelitis, no matter how weak the disease may have been, have in their blood certain neutralizing principles for the virus of poliomyelitis, and that these principles are readily demonstrable by animal tests for two or more years after recovery in human beings. Similar principles are absent in normal serum. That these principles are present in the blood of an animal, which has had an active attack, has been demonstrated experimentally by Flexner and Lewis.

As a result of these experiments a new question arises, namely, whether the immunity principles contained within the serum suffice to neutralize the virus of poliomyelitis once it is present in the body? One would naturally suppose that the serum of animals that had recovered from the paralysis would contain the neutralizing principles in no high state of concen-

tration. This led to experiments by which an effort was made to reinforce the degree of immunity in monkeys by subsequent inoculations of the virus. As a result of these experiments, we can conclude that if the quantity of the virus injected into the brain be not in excess of a given dose, the development of paralysis can in some cases be prevented by making several injections of the serum into the spinal canal or subarachnoid space. In some cases the development of the paralysis cannot be prevented but the onset of paralysis is always delayed. Flexner and Lewis have also tried to find out whether animals, protected from infection through the employment of mixtures of virus and sera or as a result of treatment by subarachnoid injections of immune sera for therapeutic purposes, exhibited an unusual degree of resistance to subsequent intracerebral injections of the active virus made at periods of several weeks to four or five months after the conclusion of the original experiments. The object of these tests was to ascertain whether a permanent augmentation of the natural resistance to infection had been accomplished by the introduction of the virus under these conditions. They have found that no unusual degree of resistance to subsequent injections of the virus has resulted and have drawn the following conclusions: (1), A neutralized mixture of virus and immune serum does not lead to any degree of active immunity. (2), The therapeutic action of an immune serum is associated with restraint of multiplication of the virus, such as would be required to establish any grade of active immunity. (3), A simple passive immunity is either not produced by the serum injection, or is of brief duration or of small amount.

Production of a Serum: The observations on immunity which have been presented in the preceeding paragraphs suggested the production of a corresponding active immunity in some of the lower animals that might possibly become the source of a therapeutic serum. Several facts have already been worked out. It has been found that the horse does not readily respond even to large injections of filtrates carrying the active virus with the development of immunity principles within the blood. Neither does the chicken or rabbit yield such immunity principles. On the other hand, Flexner and Lewis found that normal sheep serum possess a definite although slight neutralizing power for the filtered virus when mixed with it, and that the injection of the emulsion of the cord of recently paralyzed monkeys into the

sheep augments this property of neutralization. Whether this augmentation can be carried out to such an extent as to produce a serum which will be of therapeutic use has not been determined as yet. From the above observations it is seen that the serum treatment of poliomyelitis must at the present time be regarded as strictly in the experimental stage, and it cannot be predicted how soon or whether at all such a form of specific treatment of the disease will be applicable to the spontaneous epidemic disease in human beings.

Prophylaxis: While there is still a difference of opinion as to the contagiousness of epidemic poliomyelitis, its probability has been sufficiently demonstrated to render preventive measures imperative. The following are a few of the most important rules to follow in single cases or epidemics of the disease: 1, The patient should be isolated as completely as possible in a clean, bare room, well screened, to keep out insects. 2, The members of the family, other than the necessary attendant, should not be allowed to come into contact with the patient. 3, All discharges, including sputum, nasal secretions, urine and feces, as well as all articles (linen, eating and drinking utensils, etc.) which may be soiled by such discharges should be thoroughly disinfected before they leave the sick room. 4, The nurse and physician should observe the same precautions regarding their hands and clothing as in attending a case of scarlet fever. 5, The rest of the family should, so far as possible, be kept out of contact with the neighbors, at least to the extent of excluding the rest of the family from school. 6, The period during which isolation should be maintained should be about three weeks. 7, Since the virus can be killed experimentally by a 1 per cent solution of hydrogen peroxide, an antiseptic gargle of this solution (about 10 per cent) is recommended to be used by the patient and other members of the family. 8, As soon as practicable after the recovery of the patient the house should be fumigated with formaldehyde. 9, In the presence of an epidemic it would be advisable to keep down the dust by sprinkling streets and yards. This is recommended because dry weather conditions have seemed generally more favorable to the spread of epidemic poliomyelitis and because in several instances the abatement of dust has been followed by cessation of an epidemic. 10, It would also be advisable during an epidemic to keep children off the streets and away from public gatherings, to prohibit their using public drinking

cups, to pay careful attention to their diet, to prevent gastrointestinal disorders and to protect them from overeating and overexertion, and protect them from the factors which may lower vital resistance.

It is beyond the scope of this paper to enter into a discussion of state and municipal preventive measures. There is practically unanimous agreement on the following points: 1, That the disease should be required to be reported to the health authorities. 2, That patients should be isolated. 3, That members of the family should be excluded from the schools for at least three weeks.

The degree of effectiveness of prophylactic measures is very problematic. A very apparent obstacle is the difficulty of recognizing cases early before the onset of paralysis and the difficulty, perhaps impossibility, of recognizing abortive cases.

Conclusion: It may confidently be stated that the experimental study of poliomyelitis has yielded a large number of important facts relating to the spontaneous disease in man. These facts include the discovery of the nature of the virus and of many of its properties, of certain important clinical and pathological peculiarities of the disease, of the phenomena of immunity, and of a mode of spontaneous infection. They have also served to establish a basis on which to develop measures of prevention, and on which to build hopes for the working out of a specific form of treatment.

The Visceral Pathology of Syphilis

By OSCAR T. SCHULTZ, M.D., Assistant Professor of Pathology, Western Reserve University, Cleveland.

A discussion of visceral syphilis should concern itself, not with organ or tissue syphilis, not with lues of the brain, of the liver, of bone, etc., but with the nature of the pathological process which occurs in tertiary syphilis. It will be found that this process is the same, no matter which tissue or organ is involved; furthermore, that in its establishment the process has much in common with the pathology of the earlier stages of the disease.

The gross pathology of tertiary lues shows quite marked differences from that of primary and secondary syphilis. Such differences as exist are dependent, in part at least, upon the following factors:

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First, localization. The tertiary lesions tend to involve the deeper tissues and the internal organs rather than the skin or mucous membranes, so that one speaks of visceral syphilis.

Secondly, the number of lesions. This number is smaller than in secondary lues; the individual foci of tissue infection are not so numerous.

Thirdly, the appearance of the lesions. The tertiary lesions are characterized by a greater degree of necrosis and by the chronicity of the inflammatory reaction about the necrotic center; this necrotic, chronic inflammatory lesion, the gumma, is almost specific of tertiary lues.

Since the individual foci of inflammation in any stage of syphilis are the result of the reaction of the tissues to the localization of the parasites, the diminution in the number of discrete lesions during the tertiary stage would seem to indicate, and in fact is associated with, a decrease in the number of organisms present in the body. This diminution in the number of *treponemata* does not manifest itself suddenly with the advent of the tertiary stage, but occurs also in the individual lesions of the primary and secondary stages as the lesions grow older. The inoculation of a relatively small number of parasites into the skin is followed by the formation of the chancre, in which multiplication of the organisms occurs and reaches its height before necrosis becomes marked. From the primary focus *treponemata* are transported to the skin and mucous membranes and become localized in the discrete foci which give rise to the secondary syphilides. In these again a period of active multiplication occurs, which reaches its height before the pustular stage is attained. The tertiary lesions, in their turn, are produced by organisms which have come from antecedent foci. But in the gumma, no matter how small and early it may be, the multiplication of the *treponemata* is never so active as in the primary and secondary lesions; organisms can be found only with the greatest difficulty.

What are the causes of these differences? Why do the lesions become fewer in number with the duration of the disease, and why is the progression of the lesions slower? Some cases of syphilis may pass from a more or less typical secondary stage into one more rapid and severe, ending fatally in spite of treatment—malignant lues. The average case, however, usually becomes slowly less severe, even without treatment; the lesions take on a more chronic nature; without treatment the patient may ultimately die,

not necessarily of syphilis unless an organ necessary to life is involved, but of amyloid disease. Years ago, before our ideas of immunity were so definite as they are today, Neisser spoke of an "*Umstimmung der Gewebe*" as the explanation of the changes noted. The term may be translated an alteration of the tissues, an alteration which is the expression of a partial immunity. In our more modern nomenclature the condition is not really one of partial immunity—Neisser holding that a true immunity practically never occurs after lues—but is one of increased resistance of the tissues to the action of the parasite. The condition is the opposite of anaphylaxis—it is decreased susceptibility. Since von Pirquet has coined the word "allergie" to denote hypersusceptibility, Bruck has made the word "anergie" to express the lessened susceptibility which occurs with the duration of the disease. With the increasing hindrance to the multiplication and to the very existence of the parasites offered by the tissue fluids the cells of the tissues react more slowly, more chronically, to the inflammatory agent.

In the pathological histology of visceral lues it is necessary to bear in mind that there occurs not only the well defined, discrete lesion known as the gumma, but also that there may be a diffuse increase of connective tissue in the parenchymatous organs. The latter change may or may not be associated with gumma formation, gummata need not necessarily be associated with connective tissue proliferation except that which occurs in the immediate neighborhood of the lesions and tends to encapsulate them. These two kinds of pathological change may either one of them occur alone or associated with the other. It is these two pathological processes which make up the sum total of the pathology of visceral syphilis, no matter which organ is involved.

Diffuse proliferation of stroma occurs in the various organs, most often in the liver, kidneys and spleen, and raises the old question of primary stimulation of stroma to overgrowth or of primary destruction of parenchyma elements with secondary compensatory proliferation of stroma. This question is not to be definitely decided in syphilis. The parasite is by choice intracellular, in connective tissue cells as well as in parenchyma and endothelial cells, so that stimulation of the stroma is theoretically possible and undoubtedly occurs. It seems more reasonable to suppose, however, that in syphilis, as in the chronic interstitial inflammations due to other causes, the highly differentiated parenchyma cells would show the effects of the action of the parasite itself and of its

toxins by undergoing degeneration and destruction, even before the stroma is stimulated, and that the latter proliferates to replace the more vulnerable essential cells. The diffuse new formation of stroma leads to the production of dense bands of connective tissue running between and replacing the parenchymatous elements. In this way are brought about the cirrhosis of the liver, the fibrosis of the spleen, the interstitial nephritis and the chronic myocarditis which are visceral manifestations of tertiary lues. In the earlier stages of the process the proliferating stroma may be so richly infiltrated with lymphocytes that the reaction is more like that of congenital lues.

More characteristic of tertiary syphilis is the gumma, which may be defined in a few words as a caseous center with a peripheral zone of chronic inflammatory reaction. If the lesion is old, the caseous material is dry and friable, the peripheral zone dense and fibrous; if younger, the caseous material is softer, "gummy," and the peripheral zone is more juicy and succulent. Although we speak of the gumma as characteristic of syphilis and consider the presence of lesions of the type described as indicative of lues, it is fair to raise the question of the histological specificity of the gumma; it is fair to ask whether there is anything in the microscopic architecture of the lesion that is comparable to the tissue changes produced by *Treponema pallidum* in the earlier stages of the infection. It is safe to agree that lesions of the gummatous type occur in the human being most frequently, perhaps always, as the result of syphilis. This does not necessarily mean that there is anything histologically specific in the gummata upon which we base our gross pathological diagnosis of lues. Lesions of an exactly similar type occur in other animals—I have seen them a number of times in the livers of sheep—and it is conceivable that they might occur in man and not be due to lues. I have, therefore, come to look upon that lesion to which we ordinarily give the name gumma as, to a very large degree, a simple inflammatory reaction to the necrotic material which has been more directly produced by the syphilitic process. The important thing in the gumma is its mode of formation, its pathogenesis. If this is borne in mind the pathological histology of the lesion does not differ so markedly in its essentials from that of the primary or secondary lesions; all have in common an identical mode of origin.

The gumma begins about a minute blood-vessel, possibly also about a lymphatic, and it is this relation to the vessel which is

characteristic. About the infected vessel there are to be noted beginning multiplication of the stroma elements, moderate infiltration by lymphocytes and disappearance of the cells of the original tissue immediately about the vessel. These primary effects of the localization of the treponemata are followed by proliferation of the endothelium of the vessel, the lumen of the latter being obliterated. Individual cells begin to undergo necrosis, due to the vascular obliteration and to the direct action of the parasite. The vessel becomes lost in the cellular area and the relation of the latter to the vessel about which the gumma had its origin can no longer be made out and escapes observation. The surrounding stroma continues to proliferate, partly because stimulated by the small number of organisms present, but largely because the absence of newly formed blood-vessels interferes with the removal of the necrotic material, which acts as a chronic inflammatory irritant. Thus there is produced the lesion which we call the gumma.

The pathology of the blood-vessels in tertiary lues is usually considered as a thing apart, as if it were different in its actual nature or as if a different sort of process entirely were concerned in the production of the vessel changes. That tertiary lues is frequently associated with a generalized arteriosclerosis is well known clinically. This generalized arteriosclerosis differs in none of its histological essentials from that due to a variety of causes; there is nothing specific or characteristic about it. Moreover, in its mode of production it is identical with the arteriosclerosis due to other causes. Syphilitic endarteritis, due to the penetration of the intima by treponemata from the blood stream, occurs but is rare. Of much greater interest in the pathology of the vessels in tertiary syphilis are the two forms of involvement which have been considered specific. Doehle, in 1895, described nodular areas of cellular infiltration in the walls of the larger arteries and called attention to their similarity to gummata. Heller, in 1899, described the same change in greater detail, considered the areas gummata and held them specific of syphilis, naming the condition mesaortitis or mesarteriitis luetica. It is frequently referred to as Heller's mesarteriitis. Chiari, in 1903, described areas of somewhat more diffuse subacute inflammation in the walls of the larger arteries, held the condition probably due to syphilis but not specific, and termed it mesaortitis or mesarteriitis productiva. In the literature it is often referred to as Chiari's productive mesarteriitis. This is the type of involvement which leads to marked scarring and

irregular contraction, most often of the root of the aorta, without any very great tendency toward atheroma and calcification. Doehle and Heller had already noted the relation of the gummatous areas of vessel wall inflammation to the vasa vasorum. Actual syphilitic inflammation of a vessel wall begins within the tissue of the wall and bears a definite relation to the vasa propria of the wall, just as a gumma of the liver, for instance, begins within the substance of the liver but bears a definite relation to a liver arteriole or capillary. The vascular pathology of syphilis is identical in its mode of formation with the rest of the pathology of lues. The diffuse arteriosclerosis so common in lues may be due to a toxemia acting like that of alcoholism or of typhoid. In the Chiari productive type of mesarteriitis there occurs the localization of a moderate number of parasites in and about the vasa vasorum of a relatively widespread area of vessel wall, producing a diffuse, not very intense, not very destructive lesion. In the Heller gummatous type there occurs the localization of a somewhat greater number of organisms in and about the vasa vasorum of a more restricted area of vessel wall, with a resulting nodular infiltration by lymphocytes and tissue proliferation, leading soon to necrosis. We cannot, therefore, look upon the vascular pathology of lues as different in any essential in its pathogenesis from that of the chancre, the secondary skin lesions or the tertiary gummata of the internal organs. All begin in exactly the same way; in each case the primary tissue reaction, which alone can be considered the result of the action of the specific parasite, is identical; only the further changes differ in the various lesions mentioned, because of variations in the number of organisms present and because of changes in tissue resistance.

Summary: We have been too accustomed to look upon the pathological manifestations of the various stages of acquired syphilis and those of congenital lues as rather distinct from each other. It is true that the well developed lesions present gross and microscopic differences. But one of the chief fruits of the study of syphilis since the discovery of the parasite has been the establishment of a common mode of origin for the chancre, the secondary syphilides, the tertiary visceral and vascular lesions, and the changes of congenital lues. In each case the immediate tissue reaction to the localization of the parasite is the same, and only this primary reaction can be considered characteristic of syphilis. The visceral pathology of tertiary lues, characterized by diffuse con-

nective proliferation in the parenchymatous organs, by discrete gummata and by diffuse productive or nodular gummatous vascular involvement, does not differ in its primary essentials from the manifestations of the other stages of syphilis.

The Deterioration of Drugs:—The investigation of Hale on digitalis, of Edmunds and Hale on ergot, and Dohme on calabar bean, coca and aconite, have revealed the facts that many drug preparations deteriorate, and that drugs are often several years old when they reach the patient. These facts have been emphasized, also, through a report of the Council on Pharmacy and Chemistry of the American Medical Association dealing with the testing of epinephrin solutions in which the Council recommends that "manufacturers stamp the age of manufacture on the container, to guard against samples which are obviously over-aged." Naturally some manufacturers have asserted that the reported deterioration is accidental, or have tried to put the blame on the pharmacist. Some have shifted their previous claims as to strength in such a way as to avoid responsibility. Some firms, however, instead of attempting to dodge responsibility, are doing what ought to be done, and indicate the date of manufacture on the label of those preparations which are prone to deterioration. This, for instance, has been done by Fairchild Bros. & Foster for their Lactic Bacillary Tablets; by Hynson Westcott & Co. in the case of their Bulgara Tablets and by the H. K. Mulford Co. for their Cornutol and Digitol. A serious attempt to overcome deterioration has been made in a recent report by Pittenger and Vanderkleed, of the scientific staff of the H. K. Mulford Co., on methods for the preservation of fluidextract of ergot. They found that a fluidextract of ergot, put up in hermetically sealed vials, kept its strength for a year without the least change.

While most pharmaceutical houses appear indifferent to the demands of modern medicine, there are signs, nevertheless, that scientific pharmacy is making headway.—J. A. M. A., lix, 959.

Physicians and the Nervous Life:—The last three United States census reports gave the death-rate for physicians as higher than that of any other professional class. Nervous diseases constitute the most important factor in this death-rate. Commenting on these figures, W. K. Newcomb enumerates the probable causes for this unsatisfactory showing—the urgent call interrupting the moment of relaxation, the telephone bell breaking in on the hour devoted to quiet reading, the ever-present sense of responsibility and, most of all, what William James defines as "those absurd feelings of hurry and having no time . . . that breathlessness and tension, that solicitude of results, that lack of inner harmony and ease by which, with us, work is apt to be accompanied." Americans are inclined to measure efficiency subjectively—to make "the strenuous life" a synonym for "the efficient life." If a man reaches home at night a nervous wreck, he is apt to feel sure that he has spent his day effectively and well. Possibly even physicians, who from observation and theory know only too well the absurdity of this subconscious reasoning, are liable to be infected by it. The inexorable urgency of many of the physician's duties will never permit his life to flow with serene and rhythmic placidity; but doubtless it would be well worth while for most of us to spend a little time in analyzing and attempting to eliminate some of the causes for that wearing and useless haste and worry which shorten our days.—J. A. M. A., lix, 727.

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EDITORIAL

Medical Education in Europe

The report on foreign universities by the Carnegie Institute* contains much of interest to teachers of the institutes of medicine and also to teachers of clinical medicine.

It is apparent from the facts and criticisms of this report,

**Medical Education in Europe: A Report to the Carnegie Foundation for the Advancement of Teaching, By Abraham Flexner. With an Introduction by Henry S. Pritchett, President of the Foundation. Bulletin No. 6. 576 Fifth Avenue, New York City, 1912.*

that the older universities of Europe have not yet solved the essential problems of preparing medical students for medical practice. The difficulties which arise from studying the institutes of medicine without clinical conceptions and later to employ this knowledge in clinical work are quite the same as in the United States.

The best method of introducing students to clinical work and the best method of supervising and directing their work are still unfinished problems in the universities of Germany and France. American educators may take some consolation in reading the report of a man who has investigated the average German and French medical student as well as the picked university men who are the only professional representatives foreign visitors meet or know.

The teaching of medicine always will lag behind the progress of medicine so long as medicine is progressive. Nobody will be satisfied with medical teaching while research anticipates our schedules. Schedules must be subject to change. There can be no inflexible method of teaching students. Methods must vary with scientific progress. France provides abundant contact with patients but fails in supervision and direction of the student. Germany fails to provide the personal contact with patients during the third and fourth years of student life and gives the student an excess of didactic teaching. England teaches the institutes of medicine very unsatisfactorily and provides an abundance of practical clinical teaching which, however, is of the cramming, tutorial kind and fails to provide proper inspiration for professional students.

When all these difficulties are compared with our domestic situation we can cherish the hope that in a number of our medical schools we are in a fair way to impart a working knowledge of the institutes of medicine and also to provide well supervised clinical work in the third and fourth years of a medical course.

One feature of the report should be an inspiration to men interested in medical education and that is the cooperation of municipal and endowed hospitals with the universities of Germany and France. This working alliance has not been accomplished in any American city and is commonly believed impossible under our governmental methods. The want of a strong central government or the character of our municipal administration can not apologize for this failure in America.

The reason why the same working arrangements has not been attained in this country is because there has been insufficient interest in the subject among patrons of our endowed schools. And the interest of our college patrons has not been sufficiently stimulated by men who are engaged in medical teaching. Every large American city provides large clinical hospitals which could be closely allied to teaching faculties in the same manner that the alliance between teaching faculties and municipal hospitals has been formed in German and French cities. Probably the underlying cause of failure is due to the want of devotion to teaching on the part of our clinical men. If clinicians were more seriously given to teaching, our municipal governments would readily take advantage of the benefits to be derived from such a union as exists in foreign cities.

Radioactivity in Medicine

While physicians recognize that the remarkable "radioactive" properties possessed by the new element radium and other elements having similar "radioactive" properties may have therapeutic value, the claims which are made for proprietary preparations said to depend for their action entirely or in part on radioactivity, as a rule, carry with them their own condemnation. A critical reading of such advertising matter makes it plain that mental suggestion—influencing the physician or patient or both—is accountable for most of what is reported. Now and then, however, reports of experimental work with radium or other radioactive elements are published which suggest that, after all, the therapeutic value of this new class of bodies has been definitely proven. Such reports make physicians wonder whether their determination not to experiment with radioactive preparations for the present is justified. However a discussion at the recent German Congress of Internal Medicine as to the place of radioactivity in medicine fully warrants the conclusion that radium and those elements which are used for their radioactive emanations still are to be considered experimental material and not remedies to be used by physicians for the treatment of disease. The following is a brief abstract of the discussion (*Jour. A. M. A.*, Aug. 17, 1912, p. 541):

Considerable attention has been attracted by the claim of Gudzent that uric acid is dissolved and eliminated by solutions

containing radium emanations. These claims are opposed by the experimental results of Weasely, who introduced urates into the anterior chamber of the rabbit's eye and then exposed the animal to the action of radium emanation. No evidence of solution or more rapid absorption could be obtained.

P. Lazarus also, on the basis of new experiments, maintained his position that the inhalation of relatively small doses of emanation were without effect on gouty deposits. He holds that the results of Gudzent were due to experimental errors.

Solutions of thorium X have been substituted for the salts of radium and employed by intravenous injections. Having been injected they are supposed to give off emanations similar to those of radium. Falta reports a destruction of leucocytes and reduction of the size of the spleen in leukemia. Plesch has employed this method in the treatment of pernicious anemia. He lays stress on the considerable lowering of blood-pressure, increasing consumption of oxygen and an increase of the metabolism, which results in a considerable loss of weight. According to Gudzent, therapeutic effects could be obtained only by very high doses, but owing to the harm which may be done great caution is necessary.

As a result of the discussion, says the *Journal of the American Medical Association*, the conclusion seems to be justified that very large doses of the emanation or of the thorium X solution are necessary to secure therapeutic results, and in these cases the therapeutic results appear to be separated from the toxic action by a very narrow margin. It is evident, therefore, that the use of these substances is still in the experimental stage, that little, if any, effect is to be expected from preparations on the market, especially since they contain only extremely minute doses which, although probably safe, are also probably worthless. It has been remarked editorially that the chief value of radium preparations is in the name. In this connection we may well heed the opinion of Krauss, who expressed himself at the German Congress of Internal Medicine to the effect that in these preparations we are dealing with a biologically powerful agent which needs further study, but the therapeutic results are so far too uncertain, and the danger of the new method too great for it to be proclaimed as a curative remedy.

Infant Mortality and Milk Stations

The recently issued *Special Report of the Committee for the Reduction of Infant Mortality of the New York Milk Committee* represents a vast amount of excellent work in collecting data pertaining to the history, development and results of infant mortality work in the ten largest cities of the country. Nearly half of the report deals specifically with conditions and accomplishments in New York City, and especially with an investigative period of three months, from June 1, 1911, to September 15, 1911.

Although the work will do much good in interesting both the medical profession and the laity in the importance of the infant mortality problem, and will, by the good suggestions which it contains, pertaining to the organization of preventive work amongst babies and younger children, be of distinct help to them, it cannot be considered a scientific contribution towards determining the causes of infant mortality and the efficacy of the so-called milk stations in reducing it. And this for the simple reason that it is impossible, firstly, adequately to determine the value of the milk station as a factor for reducing infant mortality without first waiting at least a year, and possibly much longer, and not three months, to really learn what has happened to the various infants; and secondly, to draw any conclusions from comparisons made on birth and population statistics of the various cities in the United States.

The report itself is a clear proof of the correctness of this statement, for, on the one hand, it commends, and justly so, Cleveland most highly for the organization of its practical work in the reduction of infant mortality, and must, on the other, according to the deductions made from the mortality rate based upon birth, population and mortality records, place Cleveland near the bottom of the list. It is true that there is a difference in the promptness and accuracy with which birth reports are made in the various cities; but it is impossible, at this stage, for any one to say how well or how poorly the actual reports of the different cities are made, and, therefore, every comparison based upon such statistics becomes most uncertain, and, as far as the real truth is concerned, absolutely worthless.

The only statistics upon which a certain amount of reliance can be placed are those based upon the percentage of the infants' deaths of the total number of deaths of the city, and when

figures from these statistics are taken from the report Cleveland ranks "1" in recording the greatest reduction in this percentage since 1906, and "2" in recording the greatest drop from the highest rate recorded before 1911. But even these determinations have but a relative value, because it is absolutely necessary carefully to determine and study whether the adult death rate has been increased or decreased and for what special reason, and also because of the inability to know the length of time that the adult or child who has died has been in Cleveland.

There is no method by which the results of preventive medicine can be more carefully determined than by statistics, and it is, therefore, fundamentally necessary that a proper bureau of statistics be established. Inasmuch as the medical profession must be interested in promoting the health of the city, it ought to be willing to co-operate to the fullest extent in making the statistics of Cleveland more reliable than they are, and this the physician can do by sending in the birth reports before ten days after birth, as is required by law.

Newspapers and Medical News

A letter printed on page 546 of last month's issue of THE JOURNAL, protesting against the action of one of the local daily papers in the publication of what that paper seemed to consider a matter of general interest, calls attention to something that occurs all too frequently in the newspapers of Cleveland. Much that happens in the medical world is of interest to the layman and must be considered proper matter for publication in the lay press; the lay weekly and monthly magazines have been of undoubted value in the education of the public in health matters. Whenever, however, the publication of a medical story in a non-medical journal depends upon sensationalism for its appeal to the public there is just cause for objection. The crass and absolute ignorance of medicine exhibited by the articles which appear in the daily papers leaves as the chief constituent nothing except "yellowness."

During the present year and during previous years the Council of the Academy of Medicine has had under consideration the question of controlling the publication of medical articles by the daily papers of Cleveland. Former Councils have not been able to evolve any sort of a curb—and we do not believe it is pessi-

mism which makes us conclude that the present and future Councils will not be any more successful. The questions involved are of so general and fundamental a nature that no single professional organization is in a position to offer the proper solution. By this we do not mean to say that the Academy should sit idly by and should make no attempt to remedy the evil which exists. By restraining the advertising proclivities of those of its members who might, perhaps, do better in some purely commercial pursuit than in the practice of medicine, a medical organization can keep its own house in order and can throw the blame where it properly belongs—upon the newspaper itself. Attempts at controlling the latter will very probably be met with the statement that many physicians desire newspaper notoriety, that they look upon a news story as an asset in business. This argument can be met by enforcing the rule, upheld by every medical organization, which makes such action upon the part of its members a breach of medical ethics. Every newspaper story into which there enters the name of a member of the Academy should be investigated by a committee of the Council. And in each such investigation the mere assertion of innocence by the member, if he has any reputation for truth and probity, should be sufficient to throw the burden of proof upon the newspaper. The latter should be required to “make good,” it should be forced to prove that publication of a medical story was procured or requested, or aided in any way, by a member of the Academy. Those members whose ideas of the value of newspaper advertising outweigh their ideals of medical practice should be expelled—any medical organization is better off without them.

Our opinion of the membership of the Academy of Medicine of Cleveland is such that we do not believe that the application of the “acid test” of expulsion would lead to any very great reduction in the roll of members. In other words, we are quite firmly convinced that in practically every case the publication of a medical article by a Cleveland newspaper is a breach of propriety, that the paper alone is to blame. And it is because we feel that the blame rests upon the newspaper that we are skeptical as to the amount of control that any medical organization can exercise. Not until ordinary decency becomes a much more prominent attribute in the makeup of the average daily paper will the wishes or feelings of physicians receive any consideration.

In the case of the specific instance to which the letter in last month's JOURNAL refers, we are rather strongly aroused. We believe that the paper in question has admitted that the story was cribbed from an article published in THE CLEVELAND MEDICAL JOURNAL. Even without the admission the fact was apparent, since the story was a garbled and unsequential stringing together of entire sentences from the original article. We would not ask that newspaper writers refrain from the reading of medical journals. In fact, if more medical journals were more carefully read by more intelligent news writers, newspapers might have a better conception of medical ideals and of what constitutes proper medical material for publication. Certainly the case report which was so garbled could not be considered matter of general interest. The nature of the case was such as to make any reference to it in a lay publication almost a matter of indecency. The same paper, in the twelve page news section of a recent Sunday issue, devoted 132 square inches of its valuable advertising space to advertisements in which the following were prominent statements: "Cancer Cured Without Knife;" "Gains 30 Pounds in 30 Days"; "Eczema can be cured to Stay" (*sic*); "Reduce Your Fat"; "A Physician Cures His Wife of Consumption"; "Tobacco Habit—You can conquer it easily in 3 days"; "Be Sure You Get Duffy's"; "S. S. S.—A Cure from the Forest"; "Doctors for Men"; "J. P.—Those suffering from weakness and lack of vigor should take Juven Pills"; "Santal Middy—Catarrh and discharges relieved in 24 hours"; "Men We Cure—Pay When Cured" ("if you are responsible" in much smaller type). In the above calculation there is not included a further much larger total of space sold to the alveolar dentists, the growers of long hair, the relievers of "that run-down tired-out feeling" by means of Orangeine, those who make virile men by means of suspensories, and those who use inconspicuous liners to advertise the fact that they are skilful and competent and have lady attendants; nor does it include the space occupied by Big G in the sporting pages. *Quod erat demonstrandum*—to our own satisfaction, at least, we have proven that the greatest hope lies, not in medical censorship, but in the development of a sense of decency upon the part of the average newspaper. It will take more than rose colored spectacles to relieve the kind of moral astigmatism that sees anything desirable in the money derived from such advertising.

Tuberculosis Reportable in Ohio

Tuberculosis has been placed in the list of infectious diseases which must be reported. The State Board of Health, at a meeting held in Cincinnati August 15, took such action to make more effective the work of the board and of voluntary associations in fighting this disease.

By the adoption of this order physicians are required to report all cases of tuberculosis as they are now required to report scarlet fever, smallpox and a list of twelve other contagious and infectious diseases. Failure to make a report on tuberculous cases will subject physicians throughout the state to heavy penalties. The penalty for the first offense would be a fine not to exceed one hundred dollars, and for the second, the fine or imprisonment, not to exceed ninety days, or both.

Several cities in the state have had such a provision passed by their local boards of health in years past, notably, Cleveland, Cincinnati, Columbus, Dayton, Youngstown, Canton and Springfield. Thirty-seven states have added tuberculosis to their list of reportable diseases, either by an act of legislature or by a regulation of the State Board of Health.

"We consider this the first real step toward solving the tuberculosis problem in the state," said Robert G. Paterson, Ph. D., Executive Secretary of the Ohio Society for the Prevention of Tuberculosis. "Compulsory notification of this disease is absolutely essential as the basis for any plan to control and stamp out tuberculosis. It must be our aim, not merely to treat individual patients, but to trace them to their homes, to get at the tuberculous nests, to clear these out, and so prevent the further spread of infection. This we cannot do, unless we know where to look for the sources of infection. Notification will enable us to get a clear understanding of the size of our problem. We can then make our forces effective in fighting the disease intelligently."

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Calcium: Charles F. Disen, in the *Medical Record* for July 6, reports as to the relations of calcium to pretuberculous states, to arteriosclerosis and insanity. It would appear as though we have two distinct types among humanity, viz., the antituberculous and the pretuberculous, denoting respectively the gouty and those descending from tuberculous ancestry or otherwise predisposed to tuberculosis. Loss of calcium by lactation is said to have caused spasmodic conditions. Again, in spasmodophilia, calcium has proved beneficial. In this condition an interesting

clinical proof is evinced of the interrelation between fatty matter, phosphorus and calcium. Give less fat and more lime and the patient improves. If instead of calcium we give phosphorus, relief similarly occurs, as phosphorus enhances resorption of calcium. What do we know about deficiency of calcium as determining a pretuberculous state or predisposition to tuberculosis? Pregnancy and lactation are said to favor tuberculosis, and we cannot doubt that much calcium is being lost under both circumstances. The immunity of the gouty may be explained by his abundant assimilation of calcium, since his appetite for meat serves well to maintain the intracellular lime attracting lipoproteins, etc. Lastly, it may not be an absurd idea that the mechanical or biochemical cell strength, insured by calcium, would of itself offer protection against the tubercle bacillus. He reports the case of a seventeen year old girl of tuberculous family. Her father complained that she would talk incessantly during the time of menstruation, indulging so much during her last period that exhaustion resulted and medical advice was deemed necessary. As to this effect on the nervous system, as admittedly large quantities of calcium are lost during menstruation, following this theory a clue to management is directly at hand. As for treatment, while the gouty individual needs less of meat and nuclear material, the pretuberculous certainly needs a good share of both in order to maintain lipoproteins and to furnish acid radicles. By a short cut reasoning we should simply shovel lime into him, but it probably as often devolves upon us to make him assimilate that which he already may be receiving in his food. For such purpose Disen recommends, besides underdone beef, phosphoric acid. Probably hydrochloric acid in milk, as recommended by Russell for the tuberculous, but in smaller doses, may do well. If the urine exhibits normal or high acidity he gives calcium. Country sojourn is helpful as affording fewer irritating impulses, or any life or work giving little worry and anxiety, since a sense of security is the great keynote, acting as a psychic damper on mental catabolism. He believes that insanity can thus be prevented.

Neosalvarsan: In the *New York Medical Journal* for June 29, A. G.

Rytina states that there is no doubt in his mind that salvarsan is a specific for *Spirochaeta pallida* in practically every case, but the cause for the failure of the drug to annihilate the infection is due chiefly to the pathologic anatomical changes present in chronic syphilis, viz., the development of encapsulated spirochaetal nests, often in parts of the body having a deficient blood supply. By the intramuscular injection of salvarsan better results are obtained as far as freedom from recurrences is concerned than by the intravenous method, but on account of the excruciating pain, danger or abscess formation and coagulation necrosis, etc., it has deservedly never met with favor. A new preparation, however, which will bear the name of neosalvarsan, is a true derivative of salvarsan. He has given to date twenty-one intravenous injections and twenty-eight intramuscular, and the immediate results are fully as good as those following salvarsan injections. The spirochaetae disappear within twenty-four to forty-eight hours in chancres, mucous patches and condylomata, and the symptoms melt away with at least the same rapidity as after salvarsan. The indications, contraindications and preliminary examinations are the same as for salvarsan. He is not at present, in the majority of cases, combining with the neosalvarsan mercury and potassium iodid, for the reason of affording neosalvarsan an unhampered opportunity to prove its real worth and value. His conclusions are: (1), Neosalvarsan is a highly soluble and absolutely neutral compound. (2), The clinical results are just as affective, if not more so, than those of salvarsan. (3), Injections are free from the severe constitutional and local reactive phenomena that often follow injections of salvarsan. (4), On account of the neutral reaction the preparation lends itself well to intramuscular injection, thereby allowing a more prolonged and protracted action.

Aspidospermin: Solomon Solis Cohen, in the June number of the *Medical Review of Reviews*, considers aspidospermin a drug whose name is perhaps unfamiliar to many, but whose potency is so great in well selected cases that it has been termed by competent authority "the digitalis of the lungs." From twenty years' use or more, he can affirm that it is a sovereign palliative (not curative) for the symptom dyspnea, when this is not dependent upon mechanical or toxic causes; and it is sometimes a valuable aid in the partial relief of even these latter forms of distress in breathing. Its great field, however, is asthma, in every one of the fifty-seven varieties; and while he occasionally meets a case it will not help, such cases are rare. The drug is not official, but ought to be. H. C. Wood, Jr., in his investigations, confirms all that has been affirmed clinically. Wood found that *Aspidosperma quebracho* contains several alkaloids possessing similar and nearly equal powers as pure respiratory stimulants. The principal ones are aspidospermin and quebrachin. So-called amorphous aspidospermin is comparatively inexpensive; but it is an uncertain mixture of uncertain residues left after the crystallization of the less impure alkaloids or their salts. The most expensive preparation, crystalline aspidospermin hydrochlorid, is after all the cheapest, for it is the most dependable. Whether quebrachin in pure form would be equally potent and trustworthy cannot be said, as it is not easy to obtain for clinical work. The dose in asthma is from 1-10 to $\frac{1}{2}$ grain (0.005 to 0.03 Gm) every hour or two, then less frequently as relief is manifested. An "average dose", if there be such a thing, is $\frac{1}{8}$ grain hourly. Those unfamiliar with the drug should prescribe small doses and proceed cautiously. Should there be no relief in forty-eight hours, the patient will not be benefitted by longer trial. Aspidospermin is not "curative", either of the paroxysm or of the underlying "diathesis" or pathological condition (vasomotor ataxia or chronic bronchitis), which must, in addition, receive treatment *secundum artem*. But as a palliative tending to prevent recurrence of "spells" in the night, as well as to relieve constant distress, it is a most valuable adjunct to any basic plan of management.

Edema: In the *American Journal of the Medical Sciences* for July, Joseph L. Miller records some clinical observations on the drug treatment of edema. Two types of cases were especially observed: a renal edema due to acute or chronic nephritis; and edema, chiefly cardiac in origin, in chronic interstitial nephritis. The cases of chronic interstitial nephritis showed the most striking effects following the use of theophyllin. This was administered in capsules in doses of 0.25 gram daily. On account of the nausea which usually develops, it was rarely that the drug could be continued more than three days. After a respite of a few days the theophyllin could again be given, and by this intermittent form of treatment the edema would largely disappear. In this group of ten cases, where theophyllin was tried, seven had previously received digitalis, with slight, if any effect, upon the edema. All of this group had interstitial nephritis, with edema of the cardiac type. One patient in uremic coma had very slight edema and was the only case in this series that failed to react to theophyllin. Diuresis was marked within twelve to eighteen hours after the first dose of theophyllin, reached its maximum, as a rule, within forty-eight hours, and continued until the drug was stopped on account of nausea or until the edema had largely disappeared. The minimum diuresis was an increase from 610 to 1360 Ccm; the maximum from 630 to 3530 Ccm. As a result of the lessened edema the patients were more comfortable, although when marked dyspnea was present this was only moderately relieved. In this respect, the beneficial effects were much less striking than with digitalis or strophanthus. Apparently the theophyllin had very slight beneficial effect on the heart, but acted chiefly upon the renal circulation. As to the use of strophanthin, it was used in ten selected cases in which the patients suffered from cardiac incompenation secondary to chronic nephritis. All

of these patients were dyspneic and had more or less extensive edema. After a single intravenous injection of 0.75 Mgm, there was only a very moderate diuresis. This continued, however, for several days, the edema very gradually growing less. The dyspnea was, however, very much lessened, and in this respect the action was much more satisfactory than after the use of theophyllin. Most striking was the very frequent prolonged relief after a single injection. When decided improvement was noted after a single dose, it was rarely necessary to repeat the drug until five or six days had elapsed. In several instances, by repeating the injection once a week the patient was kept reasonably comfortable when other forms of treatment, as sweats, laxatives and digitalis, had failed to give even temporary relief. As a rule, no improvement was noted in the patient's condition until after a lapse of one or two hours. Similar agents were used in acute and chronic parenchymatous nephritis with edema, and the assertion is made that while the observations do not add anything to our knowledge of nephritis, they emphasize certain well established facts. When the permeability of the kidney to fluids, in nephritis, is seriously impaired, it is difficult and often impossible to restore this function by any measures at our command. Edema of cardiac origin, even when secondary to nephritis, may often be at least temporarily relieved by diuresis or cardiac tonics.

Nephritis: John B. Huber, in the June number of *Merck's Archives*, considers the nephritis of the infectious diseases. The renal function under normal conditions is to eliminate from the blood substances which have been excreted elsewhere throughout the body in the processes of metabolism. In the infections the products of inflammation are for the most part existent in the blood before they reach the kidneys. In addition to the heavy work of disposing of these products, the kidneys themselves suffer, in common with all the other organs and tissues, either from the invasion of bacteria themselves or from the effects of the toxins. The degree of the renal degeneration or destruction will also vary according to the biological characteristics of the responsible bacterium. The tubercle bacillus is comparatively innocuous in its effect upon the kidney tissues; the streptococcus, on the other hand, works extensive necrotic changes. The pathological changes wrought in the kidney in infectious diseases may be slight and evanescent or extensive and permanent. As to the prophylaxis, this is in each case that of the acute infection, be it an exanthem or tuberculosis or gonorrhea. It would seem that as regards the exanthemata, and diphtheria at least, the accompanying and subsequent nephritis is not so frequent or marked as was the case a score of years ago, when children were permitted to leave their beds and even their homes before convalescence was complete. In scarlet fever, nephritis sets in during desquamation and earlier, and then it is unquestionably due to the toxemia. The effect of diphtheria toxemia to cause nephritis is more nearly in consonance with the other symptoms of the disease, and the renal inflammation is more directly proportionate to the virulence and intensity of the infection. The treatment must be of a part with that of the given infection. A first essential is rest in bed. As to the diet, milk diluted with plain water or lime water or Vichy or carbonated water is appropriate. Skimmed milk is barred because it increases the proportion of nitrogenous matter, which should be cut down in nephritis. Physicians have had their patients drink as much water as possible; the idea here seems to be to "flush" the kidneys and thus wash the debris from their tubes, an idea rather fanciful than scientific. Have the patient drink as much fluid as he desires and as he can comfortably dispose of; but to force fluid upon him in unlimited quantities is certainly a mistake, for thus extra and unnecessary work is laid upon the heart and kidneys. Purgation is here preferable to diuresis. Cupping over the region of the kidneys is essential when there is dropsy, scanty or suppressed urine, nausea and vomiting and pain in the lumbar region. He knows by

experience that the poultice of digitalis leaves applied hot over the region of the kidneys is effective in the relief of these symptoms. If the urine is scanty or suppressed, spartein, digitalis, strophanthus, caffein, nitroglycerin, theobromin and the like are indicated. Diaphoresis is advised. Venesection may be required, and convulsions may be controlled by morphin, chloral or chloroform. There is not in acute nephritis the objection to opium that holds in the chronic form.

Copper: G. Wyckoff Cummins, in the *American Journal for Clinical Medicine* for July, writes concerning the therapeutics of copper, which owes its desirability as a medicinal agent to a remarkable selective action. Of late years he has come to depend, in the treatment of zymotic diseases of the intestines, upon the sulphocarbolate, or phenol-sulphonate, of copper. As a routine treatment he now adds a one grain tablet triturate of copper sulphocarbolate to a four ounce mixture and gives a teaspoonful of this every hour. The only limit to the amount that may be given is the occurrence of nausea, and this dosage approaches the limit, especially with children. To a large man he has given two grains per day without bad effects on the stomach, and he himself has frequently taken doses of one grain in solution as a prophylactic, while for seven years he has drunk in the summer time almost exclusively water that has stood for several hours in a copper tank. There need be no fear of poisonous effects from copper. The effect of 1/24 grain per hour of copper sulphocarbolate on choleraic diseases is simply marvelous; all the serious symptoms abate in a few hours. He believes it of value in typhoid cases and in these, when using the copper, nothing else is given to control any diarrhea directly, unless the latter seems too debilitating. Then a little camphorated tincture of opium and perhaps cinnamon are given. He has used the drug more than 900 times in all forms of choleraic and diarrheal diseases with uniform success and satisfaction. Several cases of chronic diarrhea, of several years duration, have yielded to it like magic. He believes the greatest usefulness of the drug lies in the prevention of all the diseases named, the most important being typhoid fever. He is sure no one will be disappointed in its use in diarrheal and choleraic diseases.

Infant Feeding: In the *International Clinics (Volume II, 22nd Series)*, Robert Dawson Rudolph considers the dangers of the underfeeding of infants. When a healthy infant is on the breast there is little danger of underfeeding. It is with artificially fed infants that the various dangers of feeding arise. When an infant suffers from any alimentary disturbance the food is usually blamed for the trouble, and properly so, no doubt. But when it comes to the question of which constituent in the food is at fault opinions differ from time to time. For a long time the proteins were the elements which were thought to give rise to most of the trouble, then the fat was blamed, and recently it is the milk sugar which is at the root of the disturbance. It is often necessary in diseased conditions of the alimentary tract to cut down a child's food very much, even to the extent of giving nothing at all, or only sterilized water or barley water for a short time, but when this is done it is most necessary to remember constantly that the child is being therapeutically starved and is in a danger zone from which it is urgent that it be removed as soon as possible. One often sees a child, even when on a very insufficient diet, continue to show digestive disturbances with bad stools, etc., and yet we must not always wait too long. His conclusions are: (1), That, when it becomes necessary to feed a healthy infant artificially, whether accurate percentage methods or the more simple home modifications be employed, whether the child be put upon whole milk, modified milk or some form of artificial food, it is necessary that the infant be given sufficient, both as regards the caloric value and the fats, sugar, salts and above all the protein, to maintain its rapid

growth and general development and vitality. (2), When a child has temporarily to be placed upon a diet, which is less than that required to keep up this growth and development, it is most urgent that this starvation regime be abandoned at the earliest possible moment.

Review of the Progress of Medicine

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Pneumonia

From the time of the earliest medical writings, pneumonia has largely been the same refractory disease and in spite of the modern advances in the knowledge of its nature, the mortality so far has remained practically the same as it was through the centuries of vacillating empiricism in therapy. Much was expected in 1884 from the discovery of the pneumococcus and its nearly constant relation to pneumonia, but in contrast to the results in the treatment in other infectious diseases, the same mortality of about 20 per cent remains, if a sufficiently large series of cases is considered.

It has been quite generally accepted, but never demonstrated, that pneumonia is a specific toxemia due to the products of the pneumococcus, with the crisis sharply marking the point in the biological reaction at which the toxins are neutralized by antitoxins. Recent experiments, however, seem to indicate that the pathogenesis of the disease is not so simple. In the first place, there are curious inconsistencies in the virulence of the pneumococci. Cole recently reported the results of a series of experiments with pneumococci obtained by blood culture from patients. Although usually virulent, the organisms in a number of instances were of extremely low virulence when tested in the same way by inoculation in mice and rabbits.

As evidence in the same direction, experiments by Meltzer, Lamar and Wollstein seem to indicate that the disease may be produced by pneumococci of low virulence as well as by those of high virulence. By intrabronchial insufflation of pneumococci in dogs, pulmonary lesions were produced identical with those in man. Large amounts of culture fluid must be used to obtain these results and must be blown with sufficient force through a tube to reach the finer air passages. The experimenters conclude that these facts permit the view that the disease is possibly not primarily induced by the pneumococci but that the latter secondarily infect a nonspecific exudate into the air vesicles. The fact that typical lobar pneumonia may exist in the absence of pneumococci is further evidence.

A good deal of the theory in regard to the pathogenesis of pneumonia has been assumed by analogy to other infectious diseases. In the first place the nature of the toxin is obscure. All attempts to demonstrate a toxin in the culture fluids of the pneumococcus have been unsuccessful. That no special toxin is produced by the organisms within the body is evidenced by the fact that the serum of animals fatally infected with pneumococci is not toxic. Furthermore, pneumococci, unlike many other bacteria, when killed by heat have very little toxicity. Various experiments by Friedberger and others have been interpreted to indicate that the toxic substances in pneumococcus and other infections are identical with the substances producing anaphylactic shock, since the dead pneumococci were toxic after being sensitized by digesting in various sera. However, Cole has shown that pneumococci can be dissolved in solutions of bile salts, and that under these conditions an active endotoxin is promptly liberated. These results were constantly obtained. The endotoxin is a labile substance disintegrated by heating to 60 °C for one hour. Large doses in rabbits and guinea pigs produce very prompt death; in smaller doses, a slower death with frequently an acute nephritis, hemorrhages into the peritoneum and liver changes.

The next step, the demonstration of antibodies in the blood of patients after the crisis is less satisfactory. Neufeld, and during the past year, Dochez have had positive results. The latter studied the serum of fourteen pneumonia patients before and after the crisis. He inoculated mice with measured amounts of virulent pneumococcus cultures mixed with the serum in question. In one case the serum taken three hours after the crisis protected a mouse against 100 times the usually fatal dose of pneumococci; the serum of the same case two days after the crisis protected against 1,000 times the fatal dose. The serum of the same case two days before and seven days after the crisis showed no protective power. However the other sera were quite irregular in their effects when similarly tested, so that one cannot conclude that there is a simple neutralization of pneumotoxin determining the crisis and resolution of the disease.

From these experimental facts as well from recent clinical studies, especially as aided by routine blood examinations, it would seem that the proper conception of pneumonia is as a systemic infection with the affected portion of the lung as the atrium of infection and the consolidation as the local defense reaction. If the defense is adequate the pneumococci do not pass into the circulation and the patient usually recovers; if the local defense is not adequate, which may depend on the virulence of the organism, a bacteriemia results and the patient more usually succumbs.

In the therapeutic application of the above facts, there are further difficulties. By injecting horses with living virulent cultures of pneumococci, a high degree of immunity can be produced. The serum of these horses injected with the pneumococci in mice will protect against 1,000,000 times the lethal dose, but if the serum be injected only a few hours after the organisms, it has no curative power. Some have claimed that in the clinical use of antipneumococcus serum entirely too small amounts were employed. However, it seems more probable that in addition to the immune bodies of the serum, it is necessary for the body to play an active part and the artificial stimulus to this process is lacking. Eggers believes that the antibodies are in part at least opsonins. Furthermore, the variation in the strains of pneumococci introduces an additional factor. Cole found that his animals immunized to one strain of pneumococci were not protected against 60 per cent of the cultures obtained from the blood of patients. Whether polyvalent serum will protect generally remains to be seen. These experimental pneumococcus infections have been used to test the inhibitory action of certain chemical substances, such as a quinin derivative by Morgenroth. In this way these studies will tend to rationalize drug therapy.

Of the various forms of specific treatment, vaccines have probably been used the most extensively, with, however, wide differences in methods and results. In general the reports are quite favorable, but undoubtedly unfavorable reports are less frequently published and the element of coincidence is hard to exclude. Nathan Raw concludes from a series of 207 cases of pneumonia treated with vaccines, that there is less toxemia and delirium and in general fewer complications than in cases otherwise treated. He does not think it hastens the crisis except in one recent case, which he thinks was aborted by doses of 50,000,000 pneumococci injected every four hours. At times there seems to be a pseudocrisis with a lowering of pulse rate of some 30 to 40 beats. The blood-pressure was not changed so far as it was observed. There was no instance of empyema in the 207 cases. Raw thinks it is important to use large doses, 50 to 100 million. Robertson and Illman conclude from their observations that the results in certain cases are striking but are inconstant. In 30 cases treated without vaccines they had a mortality of 45 per cent; in 20 treated with vaccines, only 15 per cent. They believe it is important in the preparation of the vaccines not to use over 56° of heat. On the other hand, Charters draws less favorable conclusions in a series of 19 cases. He saw no marked effect. The mortality was 21 per cent with vaccines

and 20 per cent in a control series. It did not abort the disease and complications were relatively frequent. There were two cases of empyema, one of meningitis and one of hyperpyrexia ending in death eighteen hours after the vaccine injection. With so conflicting reports and in the absence of any uniformity of technique or dosage it is obviously too early to make any final statement in regard to the efficacy of vaccines. Possibly some of the obscurity in regard to the matter may be cleared up by the study of the liberated endotoxin as prepared by Cole.

The toxin free moiety of the pneumococcus vaccine has also been isolated by E. C. Rosenow by a process of autolysis. This vaccine has been used in doses of 1 to 100 billion in about 100 cases of pneumonia with the idea of increasing the leucocytosis, the opsonins and the phagocytic power of the leucocytes. Some brilliant results were obtained in this small series of cases.

Another measure used for the purpose of increasing the leucocytosis, which for a long time has been taken as a guide in prognosis, is the hypodermic injection of nuclein. Gibson believes that a good many recoveries were directly due to the use of nuclein. An increase in the leucocytes following its use is almost invariable. Frequently repeated injections are necessary as the effects are quite transient.

According to clinical reports, the antipneumococcus serum has been used with some success, but with the same discouraging feature of inconstancy of results. It is theoretically indicated at the onset of the infection and by some is preferred to vaccine at that time. Belz has reported a series of cases treated by intravenous injection of serum with the crisis coming on an average of two or three days earlier than in a control series. There were no untoward effects from the serum. Belz concludes that he would not hesitate to use this treatment at the outset of any severe pneumonia. Because of the variation in the different strains of pneumococci, he considers it advisable to use the polyvalent serum.

More recently the use of leucocytic extract has been introduced by Alexander as a means of combating toxemia. It is too early to estimate results. As to drugs for this purpose, an endless variety has been used, each having its period of popularity. Quinin, aconite and veratrum viride were much in vogue about 1860 and of late quinin has again been very highly extolled as the most "gratifying method of treatment of very toxic cases even when advanced to the stage of profound coma with relaxation of the sphincters." It is best given hypodermically in 2 grain doses of the acid hydrochlorid every one or two hours. It would be quite useless to enumerate other drugs that have been recommended on a similar, empirical basis.

In the general management of pneumonia, the most important thing is the condition of the cardiovascular system. Gibson in 1908 first called attention to the value of the ratio of pulse rate to the blood-pressure in millimeters, as a guide to cardiac efficiency. Since then Gordon, Hare and others have expressed a belief in the reliability of this test. If the blood-pressure in millimeters falls below the pulse rate, it is an urgent indication for stimulation. If the pressure is higher than the pulse rate the prognosis is quite constantly good, unless there is a pathological elevation of pressure as in chronic nephritis. In such conditions the fall of pressure under the patient's average before the attack of pneumonia must be compared to the elevation of pulse rate over his usual pulse rate. If this ratio is less than one, proper stimulation may reverse it. If, however, there is no response the prognosis is exceedingly grave. There are two forms of cardiovascular failure calling for quite different treatment. One is the dilatation of the right heart associated with dyspnea, cyanosis and venous engorgement, which may best be relieved by venesection and myocardial stimulants, as digitalis; the other is the so-called Romberg-Passler syndrome with vasomotor paralysis, dilatation of the splanchnic vessels and tympanities. The patient presents the picture of shock from hemorrhage. In this condition many, notably Forscheimer, recommend the intravenous use of adrenalin and in some cases of saline,

together with general stimulation, especially by camphorated oil hypodermically, strychnin and caffein. If in addition the left heart shows signs of weakness digitalis should be used or digitalin hypodermically or strophanthin intravenously.

In regard to alcohol as a supportive drug, although many still use it in selected, especially alcoholic cases, there has undoubtedly been a reversal of opinion in the last decade. The studies in specific therapy seem to indicate quite clearly that alcohol inhibits the formation of antibodies, diminishes leucocytic power and lowers the opsonic index. The opinion has grown that it is not very efficient as a genuine support to the patient, but that it produces a sense of well-being by masking symptoms.

Forscheimer is very optimistic in regard to the effect of caffein in slowing and supporting the heart. He advises doses of 1 to 3 grains hypodermically in the form of the sodio-salicylate. His results with digitalis were less favorable. Stimulation should be begun very early, before the blood-pressure in millimeters reaches the pulse rate and before any irregularity of the pulse, but the dangers of overstimulation must also be kept in mind.

J. M. Anders recommends expectant treatment in serous pleural effusions before the crisis, as aspiration at that time is not well borne and the effusion may be promptly absorbed after the crisis. If not or if slow resolution by lysis is occurring, paracentesis is indicated.

In cases of delayed resolution, in addition to the usual medicinal treatment may be mentioned the X-ray, as advised by Edsall and Pemberton in 1905. The X-ray probably acts by stimulating the formation of the autolytic ferments or changing the conditions under which they act. Edsall and Pemberton have had some very prompt and favorable reactions to this treatment in suitable cases. They recommend the use of X-ray within a few weeks of the crisis, i. e., before there is any organization of the exudate. It is important to know that the condition is only a delayed resolution, not a chronic pneumonitis with fever or a tuberculous infection. Toxic cases or cases with active inflammatory processes are more susceptible to the X-ray, so that in any case the treatment should be started with a brief, tentative exposure. The reasons for the danger are obvious in the light of the recent conception of the pneumonic consolidation as a local defense reaction against a systemic invasion.

New and Nonofficial Remedies

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies"

Saloquinine, Merck & Co.

Accepted for N. N. R. Appendix:

Syrup of Quinine with Chocolate containing quinine sulphate 2.156 Gm in 100 Ccm (10 grs. in a fluid ounce).

Ointment of Cargentos and Ichthyol containing cargentos 5 per cent and ichthyol 5 per cent (*Jour. A. M. A., Aug. 3, 1912, p. 369*).

Menthol-Iodol, Kalle & Co.

The Academy of Medicine of Cleveland

COUNCIL MEETING

The Council of the Academy of Medicine of Cleveland met Friday, August 16.

O. B. Monosmith of Lorain was elected to nonresident membership.

A communication from A. P. Hammond relative to activity of the nurses of The Lakeside Hospital in soliciting obstetrical cases was read. The Secretary was directed to call the attention of A. R. Warner, Assistant Superintendent of the hospital, to the matter.

The correspondence between the Secretary and M. Loweenthal was read and the action of the Secretary approved.

The wording of the circular distributed to patients by the Department of Health of the City of Cleveland, giving the location of the tuberculosis dispensaries, was considered by the Council. The Secretary was directed to request the Health Department to have the phrase, "employ a responsible private physician", modified by striking out the words "responsible private".

The Secretary reported that the Cleveland Telephone Company will not change its ruling regarding free calls for physicians from pay stations, but will require users of such stations to pay for every call.

The Council next considered the copy of an article credited to G. W. Crile, appearing in the newspapers, together with his protest to the papers. G. W. Crile, in person, explained his attitude in the matter, stating the difficulty of getting newspapers to respect physicians' wishes, and giving it as his opinion that the solution of the matter lay in an arrangement with the papers whereby they should have in their employ a medical editor, approved by the Academy. The whole question was referred to the Civic Committee, together with matter bearing on the subject that G. W. Crile had in his possession.

The question of articles signed by C. E. Ford appearing in *The Press* was for a second time brought to the attention of the Council. The Council unanimously agreed that there was no objection to such articles being signed by Doctor Ford in his capacity as Superintendent of Health.

Book Reviews

The Pituitary Body and its Disorders—Clinical States Produced by Disorders of the Hypophysis Cerebri. By Harvey Cushing, M. D., Associate Professor of Surgery, the Johns Hopkins University; Professor of Surgery (elect), Harvard University. An Amplification of the Harvey Lecture for December, 1910. Cloth, 341 pages, 319 illustrations, \$4.00. J. P. Lippincott Company, Philadelphia and New York, 1912.

The publishers have presented this monograph in excellent form. We wish that more medical publications could utilize the German plan of presentation, which, by the proper use of different types, letter and word spacing and italics, facilitates perusal, makes reference easy, permits one quickly to grasp the subject matter and, what is often more valuable, the author's own opinion of what he deems important paragraphs and phrases.

The volume reflects a modern tendency in that it contains a wealth of excellently executed illustrations, which for the most part aid in the presentation of the forty-seven case reports. These case reports with the author's interpretations make up Part II of the monograph, or 208 of the 322 pages of subject matter. They are models for detail and clearness of exposition of tangible phenomena unmarred by opinions, which are, with wisdom, uniformly segregated under the caption "Interpretation." Such reports alone are valuable additions to our knowledge because of their intrinsic value to other students of the subject.

In Part I the author gives a resumé of the anatomy of the gland and a review of the physiology, including a summary of the experimental work of the author and his associates at the Hunterian Laboratory, which have established the vital importance of the pars anterior and the symptom complexes of glandular insufficiencies.

The section dealing with the pathological anatomy of the pituitary is strikingly meager in details of the types of alterations that have been described as well as of the clinical associations of these types apart from the findings in twenty-nine of their own cases. This is more striking on account of the primary importance attached to the hyperplasias in the subsequent interpretation of the clinical cases.

In dealing with the clinical manifestations of disordered pituitary function the author borrows as the basis of classification the prevailing surgical grouping of thyroid states. Thus he recognizes "hyperpituitarism," "hypopituitarism" and "dyspituitarism." Doctor Cushing, however, seems aware of the dangers lurking in such terms as hyper- and hypopituitarism when he urges as more applicable to the majority of cases the neutral cloak for our ignorance—dyspituitarism. There are those who possibly would not consider the use of this old noncommittal term an advance, but the reviewer believes that, in avoiding "giving names to things we do not know are things," we are progressing. Doctor Cushing accepts gigantism and acromegaly as symptoms complexes indicative of hyperpituitarism and Froehlich's syndrome as indicative of hypopituitarism. Between these extremes he recognizes a group combining the manifestations of gigantism or acromegaly and Froehlich's syndrome which he designates dyspituitarism. This is the largest group. On page 250 the author assembles the "arguments favoring the hyperpituitarism conception of acromegaly," which serve to illustrate the well known insufficiency of specific data to support an hypothesis of physiologically injurious hyperactivity as applicable to any organ.

The dualistic nature of the organ is emphasized—the author believing that the pars anterior discharges its secretion directly into the circulation and presides over the growth of the osseous system, while the pars intermedia and infundibulum discharge a secretion of easily soluble, hyalin like granules into the third ventricle and have to do with metabolism, especially that of the carbohydrates. Doctor Cushing believes that clinically he has recognized predominant anterior lobe hyper- and hypoactivity, predominant posterior lobe hyper- and hypoactivity, and that there is evidence of several combinations of the combined activities and inactivities of the two lobes. The pathological anatomy of the pituitary gland in his cases, as others have also found, lends little support to the clinical differentiation into hyper- and hypopituitarism, as closely allied changes are present both in acromegaly or gigantism and in primary Froehlich's syndrome. This is analagous to the well known fact that the thyroid changes associated with Basedow's syndrome and with myxedema are often identical. But whatever the ultimate status of the question of pathological glandular hyperactivity may be, this monograph will serve an urgent need in exposing to the profession in this author's thorough yet concise way a necessarily neglected though most important field for observation and usefulness, in which he has not only pioneered but made noteworthy contributions of facts.

Part III includes a review of the incidence, symptomatology and treatment. It reflects the eminence and wide experience of the author in the fields of neurology and brain surgery and brings within reach of us all careful and conservative judgment as to what may at present be expected in the way of diagnosis and therapy in this group of cases.

D.M.

A Manual of Clinical Chemistry, Microscopy and Bacteriology. By Dr. M. Klopstock and Dr. A. Kowarsky of Berlin. Only authorized translation from the last German edition, thoroughly revised and enlarged. Cloth, pp. xii and 371, 43 figures and 16 colored plates, \$3.00. Reiman Company, New York, 1912.

This excellent little hand-book furnishes the essentials of laboratory technique in a concise and clear manner. An extremely large number of methods is described, and with sufficient detail for the laboratory worker. The illustrations are only mediocre.

C. F. C.

Operative Obstetrics, including the Surgery of the Newborn. By Edward P. Davis, M. D., Professor of Obstetrics, Jefferson Medical College, Philadelphia. Octavo volume of 483 pages, with 264 illustrations. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$5.50 net.

To the reviewer the chief value of this book lies in the emphasis laid on the strictly surgical nature of obstetrics, and particularly, of operative obstetrics. Doctor Davis gives a clear, concise and comprehensive view of the subject, giving excellent details where indicated, and always laying stress on the surgical aspect. He warns the inadequately trained against undertaking blindly tasks for which they are unfitted, and shows clearly the necessity for adequate skilled assistants in operative work. The text dealing with operative procedures, backed by an unusual number of excellent illustrations, is clear and concise; the bibliographies enable the seeker after truth to go back to the original sources for further details. The chapters on the more recent operations present their value and limitations fairly. The book is very well printed, and the illustrations, from various sources, clear and helpful. The reviewer feels that the passage advocating the use of ergot before extusion of the placenta should be qualified in order not to mislead the student and inexperienced practitioner.

G. B. F.

An Essay on Hasheesh, Including Observations and Experiments. By Victor Robinson, Contributing Editor, *Medical Review of Reviews*, Author of "Pathfinders in Medicine," etc. Cloth, 83 pages, 50 cents. *Medical Review of Reviews*, New York, 1912.

In a nicely made little volume which can be read in less than an hour Victor Robinson discourses upon the origin and the actions of hasheesh, that almost celestial substance for which we have had considerable longing ever since our first reading of the "Arabian Nights" and from the personal experimental investigation of which we have been deterred only by the fear that habit might ultimately lead us to that other and stronger form of hemp which enters into the composition of the hangman's noose. Robinson's essay, neither in bulk nor in language, measures up to a standard sufficient to force DeQuincey's "Confessions of an English Opium-Eater" from that shelf which holds our most loved bookly treasures. And "the dancing maidens with their soft, yielding bodies, white and warm" of the hasheesh dream may have seemed beautiful, but they lack the nobility and beauty of character of Ann, the sixteen year old London prostitute, to whom DeQuincey paid a tribute that makes her seem more desirable than all the houris of a drug disordered imagination. It is, of course, manifestly unfair to the "Essay on Hasheesh" to compare it with the "Confessions," if for no other reasons than that the writer of one is still living whereas the author of the other has been a long time dead, and that Robinson limited himself to a single twenty minim dose of the fluidextract of cannabis indica whereas DeQuincey spoke of laudanum as "peace of mind" that "could be sent down in gallons by the mail-coach." Robinson's essay, however, makes very pleasant reading, and especially its first part, which discusses the diverse origin of medicaments in general and the source of hasheesh in particular, is decidedly worth the tired doctor's while.

O. T. S.

The Care of the Skin and Hair. By William Allen Pusey, A. M., M. D., Professor of Dermatology in the University of Illinois. Cloth, 182 pages, 3 figures. D. Appleton & Company, New York and London, 1912.

This is a small volume written in non-technical language for the laity. He discusses briefly the anatomy, physiology and hygiene of the skin and the influence of diet, digestion and various kinds of baths in preserving the proper health of the skin. Various kinds of powders, ointments and creams are mentioned with their proper uses.

He briefly describes the more common inflammations of the skin and hair, and gives a few simple remedies for each, but not sufficient to give the impression that self-medication is desirable or proper. In fact he condemns the indiscriminate use of drugs for that purpose.

W. C. G.

Progressive Medicine, a Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., and Leighton F. Appleman, M. D. Vol. XIV, No. 2. Whole No. 54. Vol. II, June, 1912. Hernia—Surgery of the Abdomen Exclusive of Hernia—Gynecology—Diseases of the Blood, Diathetic and Metabolic Diseases. Diseases of the Thyroid Gland, Nutrition and Lymphatic System—Ophthalmology. Lea & Febiger, Philadelphia and New York.

The choice of publications for review and the relative value given each contribution show good judgment and a thorough knowledge of the subjects on the part of the authors. The number is to be recommended as a readable digest of the advances and discoveries in the fields covered.
J. P.

The Practical Medicine Series. Volume III, Series 1912: The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C. M., M. D., D. C. L.; Albert H. Andrews, M. D., and Gustavus P. Head, M. D. Cloth, 358 pages, four plates and 26 figures, \$1.25. Price of the series of ten volumes, \$10.00. The Year Book Publishers, 120 North Dearborn Street, Chicago.

The introduction to the section devoted to the eye is well worth the consideration of every physician. Quoting Edward Jackson and H. V. Wurdemann, by which they "echo the experience of all who are engaged in the dissemination of literature among specialists," the authors deplore the lack of "reading men" in the medical profession. They justly criticize the "submerged 75 per cent of eye doctors" for their lack of interest in the progress of medicine, especially those that "prostitute their profession into a business."

That the above statements are true no one can deny nor do the majority of medical men hold out anything better for the future. In the rush of modern times the number of "reading men" seems certain to grow less and less and to meet this condition year-books will come more and more in demand.

Books of such merit as the present volume will no doubt tend to remedy the existing evils by giving the busy man, who desires to read, a convenient method of learning what progress is being made in his particular line of work; and by its easily readable style and excellent arrangement it will tempt those less inclined to read to further endeavors to keep abreast of the times.

Excerpts only of the original articles are given, with the exceptions of some present day problems which are given more in detail. In many instances the value of the article is increased by the personal comment of the editor.

Heller strongly advocates the training of patients doomed to blindness before vision entirely fails. R. M. Williams, after an exhaustive study of case records in ophthalmia neonatorum, favors the Crede method but advises a weaker solution of silver nitrate than is commonly used. Samuel D. Risley emphasizes the importance of intestinal antisepsis in cataract operation. Some valuable suggestions for the treatment of low grades of heterophoria as well as high grades of heterotropia by partial tenotomy are offered by R. P. O'Connor and L. Lewis Ziegler.

The advances in the study of glaucoma are fully recorded, including the later operations for the relief of this condition, namely: simple trephining of the sclera by Major R. H. Elliott, and the Lagrange operation by Lagrange himself.

Robert Randolph reports two cases where X-ray failed to locate foreign bodies that were afterward shown to be present in the eye. Harry Gradle gives some interesting observations upon the excretion of urotropin in the eye.

The relation of the nose and accessory sinuses to ocular diseases, while not a new subject, is being more studied and has enabled us to treat more intelligently certain obscure conditions. Van der Hoeve and Frank Brawley contribute papers upon the relation of the accessory sinuses to affections of the optic nerve.

The opinions and experiences of Ehrlich Finger and others in the giving of salvarsan, especially relating to the possible untoward effects upon the optic and auditory nerves, are of great value.

W. Lubuiski gives a timely warning in the use of menthol in infants; fatal cases have been reported. Eustace Smith calls attention to the presence of postnasal catarrh in children suffering from loss of appetite and gastric derangements. The Yankner operation of closing off the Eustachian tube in the treatment of chronic middle ear suppuration is discussed by men of experience with this operation.

Transillumination of the mastoid is described by H. P. Mosher. The treatment of diseased and hypertrophied tonsils is pretty well covered and brought up to date. This is a subject of as much interest to the general practitioner as to the specialist.

It is quite pleasing to note that much of the energy that has been devoted to perfecting instruments and technic for complete excision of the tonsil is now being devoted to the study of the tonsil itself. The plea for more conservatism in the surgical treatment and more technical experience for those who attempt complete enucleation of the tonsil is very opportune.

The book on the whole maintains the high degree of efficiency that has characterized the previous issues. It will serve as an excellent desk companion for both general practitioner and specialist. D. A. P.

Acknowledgements

A Manual of Chemistry. By W. Simon, Ph. D., M. D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; and Daniel Base, Ph. D., Professor of Chemistry in the University of Maryland. New (10th) edition, enlarged and thoroughly revised. Lea & Febiger, Philadelphia and New York, 1912.

A Treatise of Diseases of the Hair. By George Thomas Jackson, M. D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, and Charles Wood McMurty, M. D., Instructor in Dermatology, *ibid.* Lea & Febiger, Philadelphia and New York, 1912.

The Principles of Human Physiology. By Ernest Henry Starling, M. D. (Lond.), F. R. C. P., F. R. S., Jodrell Professor of Physiology in University College, London. Lea & Febiger, Philadelphia and New York, 1912.

Elementary Bacteriology and Protozoology: the Microbiological Causes of the Infectious Diseases. By Herbert Fox, M. D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. Lea & Febiger, Philadelphia and New York, 1912.

Progressive Medicine. Vol. III, September, 1912. Diseases of the Thorax and its Viscera, Including the Heart, Lungs, and Bloodvessels. Dermatology and Syphilis. Obstetrics. Diseases of the Nervous System. Lea & Febiger, Philadelphia and New York.

Auto-Intoxication and Disintoxication: An Account of a New Fast-ing Treatment in Diabetes and Other Chronic Diseases. By Dr. G. Guelpha (Paris). Translated by F. S. Arnold, B. A., M. B., B. Ch. (Oxen). When an introduction by the translator and a chapter on the use of the method in the treatment of morphine addiction, by Oscar Jennings, M. D. (Paris). Rebman Company, New York, 1912.

Pathology and Treatment of Diseases of Women. Fourth edition, rewritten by A. Martin, Professor u. Direktor; and Ph. Jung, Professor u. Oberarzt, der Universitäts-Frauenklinik in Greifswald. Only authorized English translation, written and edited by Henry Schmitz, M. D., Professor of Gynecology, Chicago College of Medicine and Surgery, etc. Rebman Company, New York, 1912.

Surgery of the Brain and Spinal Cord, Based on Personal Experiences. By Professor Fedor Krause, M. D., Geh. Medizinalrat, Dirigierender Arzt am Augusta Hospital zu Berlin. English adaptation by Dr. Max Thorek, Surgeon-in-Chief, American Hospital, Chicago, etc. Volume II. Rebman Company, New York, 1912.

Symptoms and Their Interpretation. By James Mackenzie, M. D., LL.D., Aber. & Edin., Lecturer on Cardiac Research, London Hospital, etc. 2nd edition. Paul B. Hoeber, New York, 1912.

A Practical Textbook of the Diseases of Women. By Arthur H. N. Lewis, M. D. (Lond.), F. R. C. P. (Lond.), Senior Obstetric Physician to the London Hospital, etc. Seventh edition. Paul B. Hoeber, New York, 1912.

Medical News

The University of Pennsylvania has begun the preparation of plans for a \$300,000 surgical building, which is to be first of a new group of hospital buildings whose total cost for construction is expected to reach \$1,000,000.

The American Electro-Therapeutic Association, at its twenty-second annual meeting held in Richmond, Virginia, September 3-5, elected the following officers: President, F. Howard Humphris, London; Vice-Presidents, George E. Pfahler, Philadelphia, and E. C. Titus, New York City; Secretary, J. W. Travell, New York City.

The Association of Military Surgeons of the United States holds its annual meeting at Baltimore, October 1-5.

The General Federation of Women's Clubs, held in San Francisco in July, passed resolutions endorsing the establishment of a national department of health, favoring more accurate registration of births and deaths, commending medical school inspection, and urging the requirement of medical certificates for marriage.

The Southern Medical Association has appointed a special commission consisting of Captain Charles F. Craig, M. C., U. S. A., Chairman; Graham E. Henson, Crescent City, Florida, Secretary; R. H. von Ezdorf, U. S. P. H. Service, Mobile; William Kraus, Memphis; Creighton Wellman, New Orleans; William H. Deaderick, Marianna, Arkansas; W. S. Thayer, Baltimore; Seale Harris, Mobile; and C. C. Bass, New Orleans. The commission will tabulate information from the entire South on malaria and diseases simulating malaria and will decide on what means will be used for the elimination of this condition.

The American Public Health Association, at its annual meeting held at Washington during the week of September 16, elected the following officers: President, Rudolph Hering, New York City; Vice-Presidents, W. R. Batt, Harrisburg, Pennsylvania, James Roberts, Hamilton, Ontario, and J. E. Monjares, Mexico; Secretary, Seliskar M. Gunn; Treasurer, Livingston Farrand.

The National Association for the Study of Pellagra holds its second triennial meeting in Columbia, South Carolina, October 3 and 4.

The American Association of Obstetricians and Gynecologists held its twenty-fifth annual meeting at Toledo, September 17-19.

Sanitation of the Panama Canal Zone continues to show the results of efficient administration. The report of the chief sanitary officer

of the Isthmian Canal Commission, Col. W. C. Gorgas, M. C., U. S. A., for June shows an average annual death-rate among employees of 6.84 per 1,000, the lowest since the organization of the commission in 1905.

The Reporting of Tuberculosis in France, legislation for which purpose has been urged, has been opposed by the Syndicat des medecine de la Seine upon the ground that "reporting tuberculosis would tend to make patients reluctant to place their confidence in the physician, and that the role of police officer imposed on the physician would violate professional secrecy."

The Phipps Psychiatric Clinic of the Johns Hopkins University, the result of donations of \$750,000 from Henry Phipps of Pittsburgh, will be opened January 1 under the direction of Adolph Meyer.

The Health Department of New York City has asked for an appropriation of \$3,086,599 for the coming year, an increase of \$1,367,921 over the allowance for the present year.

Convictions because of Misbranding have been obtained under the Pure Food and Drugs Act against the following nostrums: Wood's Soothing Syrup, Ralston's Select Bran and Acme Diabetic Flour, Dr. Caldwell's Rheumatism Cure, Dr. Caldwell's Anti-Pain Pills, and Hoff's Consumption Cure.

J. Riddle Goffe, of New York City, was chosen president-elect at the sixth International Congress of Gynecology, which opened in Berlin, September 9. The next congress will be held in this country.

Simon Flexner, Director of the Rockefeller Institute, will deliver the Huxley lecture before the Charing Cross Medical School, London, on October 31.

Professor H. Strauss, of Berlin, will deliver a course of lectures, October 12-15, on diseases of the stomach and kidneys, at the New York Post-Graduate Medical School. At the same place, on October 28-31, Professor Carl von Noorden, of Frankfort, will deliver a course of lectures on diabetes, arteriosclerosis, and radium therapy.

Don R. Joseph, associate in physiology and pharmacology at the Rockefeller Institute, has been appointed associate professor of physiology at Bryn Mawr College.

Ohio State Medical Board Examinations: The results of the examinations held at Columbus, June 18-21, were as follows: The total number of candidates examined was 208 of whom 191 passed, including 9 osteopaths, and 16 failed, including 5 osteopaths. One certificate was withheld. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1912)	87
University of Louisville		(1909)	84.2
University of Michigan, Homeopathic College		(1912)	81.6
Starling-Ohio Medical College (1912)	75.7, 76.6, 77, 77.4, 77.5, 78, 78.3, 79.4, 79.7, 79.8, 80, 80.4, 80.7, 80.8, 80.9, 81, 81.2, 81.2, 81.2, 81.5, 81.6, 81.8, 81.9, 82, 82, 82, 82.1, 82.3, 82.4, 82.4, 82.4, 82.5, 82.7, 82.7, 82.7, 82.8, 83, 83.5, 83.5, 83.7, 83.9, 84.1, 84.1, 84.2, 84.6, 85.2, 85.4, 85.5, 86, 86.2, 86.3, 86.7, 87.2.		
Ohio-Miami Medical College (1910)	79.7; (1912) 75, 75, 75, 75.6, 76.7, 76.7, 77.5, 78, 78.3, 79.1, 79.2, 79.5, 80, 80.1, 80.2, 80.3, 80.4, 80.6, 80.6, 80.7, 80.8, 81, 81.2, 81.5, 81.6, 81.8, 82.1, 82.1, 82.2, 82.4, 82.5, 82.9, 83, 83.3, 83.7, 83.8, 83.9, 84.7, 84.8, 85, 85.2, 86.8, 86.9, 87.		
Western Reserve University (1912)	78.3, 78.8, 79, 80, 80.2, 80.3, 80.7, 80.8, 80.9, 81.3, 82, 82.2, 82.2, 82.5, 83.1, 83.4, 83.6, 83.8, 84, 84, 84, 84.6, 84.7, 85.1, 85.2, 85.2, 85.6, 86.7, 86.9, 87, 87.4, 87.5, 88.		
Cleveland College of Physicians and Surgeons (1912)	77.4, 77.9, 80.8, 81.3, 82.1, 82.6, 82.9, 83, 84.2, 84.3, 84.8, 85, 85.4, 85.5, 85.7.		
Cleveland Homeopathic College		(1909)	78.2

Cleveland-Pulte Medical College (1912)	75.2, 76.3, 77.5, 77.8, 80, 81, 81.4, 83.
Eclectic Medical College, Cincinnati (1912)	75.6, 76.2, 76.5, 78.7, 79.5, 80.6.
Toledo Medical College (1912)	75.7, 76.5, 78.8, 78.8, 79.5, 81.5, 84, 86.7.
Miami Medical College	(1890) 76.1
Jefferson Medical College	(1902) 78.3; (1912) 76.1 80.5
University of Pennsylvania	(1910) 82; (1911) 81.8
University of Pittsburgh	(1911) 78.9
Medico-Chirurgical College of Philadelphia	(1912) 79.5
Hahnemann Med. Coll. and Hospital, Philadelphia	(1911) 77.4
Lincoln Memorial University	(1911) 75.4

FAILED

Cleveland University of Medicine and Surgery	(1890) 53
Starling-Ohio Medical College	(1912) 73.5
Ohio-Miami Medical College	(1912) 71.5, 74.4
Eclectic Medical College, Cincinnati	(1911) 71.5,*73.3
Toledo Medical College	(1912) 74.3
Roal University of Naples, Italy	(1911) 72

*Third examination.

At meetings of the board held April 2 and July 9, twenty-seven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Reciprocity with
Northwestern University Medical School (1895) Wisconsin; (1898) Minnesota; (1910) Illinois.		
College of Physicians and Surgeons, Chicago.....	(1905)	Wisconsin
Rush Medical College	(1901)	Illinois
Indiana University, School of Medicine	(1909)	Indiana
Kentucky School of Medicine	(1898)	Indiana
Detroit College of Medicine.....	(1897)	Michigan
University of Michigan, Homeopathic College.....	(1910)	Michigan
Michigan College of Medicine and Surgery.....	(1897)	Michigan
University of Michigan, Dept. of Med. and Surg. (1910) (1911)		Michigan
Barnes Medical College	(1897)	Missouri
Homeopathic Medical College of Missouri	(1877)	Missouri
Washington University, St. Louis	(1903)	Missouri
Marion Sims College of Medicine	(1897)	Missouri
Long Island College Hospital	(1909)	New York
University and Bellevue Hospital Medical College (1899) (1907) New York.		Michigan
University of Buffalo	(1899) (1900)	New York
Medical College of Ohio	(1893)	Kentucky
Cincinnati College of Medicine and Surgery	(1900)	Kentucky
Western Reserve University	(1891)	Kentucky
Hahnemann Medical College and Hospital, Philadelphia (1889) Maryland; (1909) Indiana.		
Jefferson Medical College.....	(1881)	W. Virginia

Thomas R. Brown, of Baltimore, has been placed in charge of the bacteriological and research department of the Hygienic Laboratory of the State Board of Health of Ohio.

E. R. Crew, Miamisburg, has succeeded J. C. George, resigned, as superintendent of the Miami Valley Hospital at Dayton.

Miami Valley Hospital of Dayton has received a gift of \$25,000 to be used exclusively for the treatment of specific diseases.

School Medical Inspectors have been appointed by the Board of Education as follows: W. T. Barger, M. B. Bonta, E. R. Brooks, L. W. Childs, H. K. Corlett, J. E. Darby, H. L. Davis, A. B. Howard, M. H. Klaus, J. H. McHenry, S. J. Lind, S. H. Monson, J. C. Pacak, W. A. Schlesinger and S. A. Weisenberg.

The Detroit Homeopathic Medical College has been amalgamated with the Cleveland-Pulte Homeopathic Medical College.

The New Statler Hotel is to be opened October 5 with a charity ball, the proceeds of which are to go to The Babies Dispensary and Hospital.

Child Hygiene Exhibition: The portion of the exhibition of the XV International Congress of Hygiene and Demography relating to child hygiene and the prevention of infant mortality is to be brought to Cleveland and will be open to the public in the Hartness Brown building on Euclid Avenue during the week of October 7.

Deaths

Andrew J. Brockett, University of Michigan, 1862, died at Cleveland, August 12, aged 76.

Edward B. Root, Albany (N. Y.) Medical College, 1856, died at Painesville, August 9, aged 80.

Alvin T. Heavenrich, Miami Medical College, Cincinnati, 1904, of Seattle, Washington, died at Cincinnati, July 31, aged 29.

Thomas Adams, Trinity Medical College, Toronto, 1901, of Columbus, died at Denver, August 7, aged 35.

Richard M. Fulkerson, Eclectic Medical Institute, Cincinnati, 1870, died at Mounds, Illinois, August 11, aged 73.

Rudolph Wirth, Pennsylvania Medical College, Gettysburg, 1859, died at Columbus, June 8, aged 83.

Henry Sanford Green, Miami Medical College, Cincinnati, 1869, died at Cardington, August 18, aged 70.

James Polk Sangston, University of Wooster, Cleveland, 1868, died at McCallandtown, Pennsylvania, August 17, aged 67.

John D. Kotheimer, Cleveland College of Physicians and Surgeons, 1885, died at Youngstown, August 10, aged 50.

George W. Daniels, Cincinnati College of Medicine and Surgery, 1871, died at Gerrardstown, West Virginia, September 4, aged 73.

Charles H. Hough, Homeopathic College Hospital, Cleveland, 1884, died at Champaign, Illinois, September 10, aged 50.

Lebanon U. Howard, Western Reserve University, 1893, died at Rosemont, August 30, aged 53.

Charles H. Foertmeyer, Medical College of Ohio, Cincinnati, 1872, died at Cincinnati, August 31, aged 71.

John A. Chesne, Columbus Medical College, 1879, died at Bucyrus, August 31, aged 55.

Solomon F. Ballinger, Medical College of Ohio, Cincinnati, 1865, died at Alliance, September 4, aged 76.

Alexander Smith, Medical College of Ohio, Cincinnati, died at Marysville, August 31, aged 61.

George L. Calloway, Eclectic Medical Institute, Cincinnati, 1892, died at Osgood, Missouri, September 2, aged 39.

J. C. Dillon, Medical College of Ohio, Cincinnati, 1870, of Rushville, Indiana, died at Oxford, aged 67.

Francis Henry Pope, Western Reserve University, 1854, died at Bothwell, Ontario, July 30, aged 83.

Frederick W. Davis, Western Reserve University, 1880, Vice-President of the Academy of Medicine of Cleveland, died at Cleveland, September 13, aged 60.

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The Importance of Hospitals for Infants and their Part in the Prevention of Infant Mortality*

By L. EMMETT HOLT, M.D., Professor of Diseases of Children,
Columbia University, New York City.

The fundamental causes of excessive infant mortality depend upon conditions which are sociological and economic. They include housing and the environment of cities, labor conditions affecting wages, the cost of living, illegitimacy and other consequences of vice, want of care and many other factors. For practical purposes all of them may be regarded as the results of poverty, ignorance and neglect. These bring about certain definite results, i. e., an infant population which comes into the world with less than normal resistance to adverse influences. Nutrition and growth are difficult owing to improper food and care. These conditions predispose to disease which easily develops in these susceptible individuals as a result of neglect, exposure, contagion or accident. We cannot hope to abolish poverty, we cannot altogether remove ignorance and neglect, but we can seek to minimize these evils as they bear unfavorably upon infant life. We are compelled in this problem to attack consequences rather than causes.

In the solution of a great social problem like that of infant mortality several things are necessary. First, it is fundamental that we have a knowledge of the facts, full, definite and accurate; this includes not only the circumstance of death but the causes; secondly, we must discover the best means of prevention and the agencies through which these measures can be most effectively used; finally, there must come the actual application of the knowledge of preventive and curative measures to achieve the result

*Address of the President-elect before the American Association for the Study and Prevention of Infant Mortality, at the Third Annual Meeting, held at Cleveland, October 2-5, 1912.

aimed at, by coming into close practical relation with the public we seek to influence. Briefly then our activities must be first, statistical; second, preventive; third, curative.

Now in a broad campaign like this one if it is successful we must have many different kinds of interests enlisted. We need a publicity department which shall bring home to the people of the whole country the importance of this work. Through the newspapers and magazines public interest must be awakened and public spirit aroused. With so many good causes constantly forced upon public attention we will get no hearing without constant and persistent effort. The value of popular exhibits in awakening the public has already been demonstrated; these should be continued and greatly extended. We need legislative influence which will enact, and a public opinion which will enforce proper laws regarding the employment in factories and sweat shops of expectant mothers and mothers with young infants. We need the cooperation of municipal authorities in securing clean streets, pure milk, good water and proper tenement construction and inspection. We need the philanthropic agencies which shall make it possible to give relief when needed,—proper food for nursing mothers, milk stations to supply pure milk for those unable to pay for it and for many other emergencies. We need the help of the sociologist in the solution of the problem of poverty in large cities of which excessive infant deaths are only one of the results. We need the nurses and other social workers who shall take into the homes of the poor and ignorant a knowledge of established facts regarding infant feeding and hygiene; for these people can be enlightened and roused to action only by personal contact.

We know the main facts regarding infant mortality; we know the important causes; we know the chief remedies. What remains is to get our knowledge before the public and stimulate to action. Is there anything else needed in the solution of this problem? Many of you would, I think, be inclined to answer in the negative. With this opinion I would hardly agree. It is my own belief that the medical aspects of the question of excessive infant mortality have come or are coming to be too little considered. Especially is this true regarding hospitals for infants. We have in this country been slow to appreciate the need of special hospitals for children. Just as the specialty of pediatrics has been gradually differentiated from obstetrics on the one hand

and general medicine on the other, so the evolution of the special hospital has been a slow one. Homes for foundlings most of our large cities have provided for many years. These though necessary have been in no sense hospitals; and often lacking in proper medical control, by their excessive mortality they have served as an example of how little philanthropy without science can accomplish in saving infant life.

In maternity hospitals infants are tolerated as one of the unavoidable incidents of obstetric practice. But the provision for them and the attention bestowed upon them, even in our best institutions, is something which shocks the pediatricist. Certainly these institutions have as yet failed to appreciate the institutional requirements of young infants.

Wards for young children have been a part of the organization of a number of our larger general hospitals for only fifteen or twenty years. But these again have missed the mark for two reasons: first, in that they have been given over largely and in many cases exclusively to the treatment of orthopedic and other surgical cases; and in the second place, where medical beds existed, the service was a part of the general medical service of the institution and the attending physicians as a rule gave scant attention to the infants and the net result was that the service often went by default and very little was accomplished in advancing the knowledge of the diseases of children.

It is often urged that wards for infants in general hospitals are to be preferred to separate hospitals. In spite of the fact that the efficiency of the children's service has been greatly improved by the appointment in many hospitals of a special attending physician to these wards, a practice which should invariably be followed, I have personally no hesitation in pronouncing in favor of the separate hospital.

The construction, the equipment, the organization and the operation of a hospital for young children, are quite different from those needed in hospitals for adults. These grow out of two great difficulties which attend the hospital care of these patients,—the problem of nutrition and that of ward infections. These necessitate smaller wards, ampler provision for the separation of patients in doubtful cases and in diseases of feebler communicability than our ordinary contagious diseases. Not only must there be sufficient provision for fresh air and proper ventilation for our acute infectious cases and pneumonia, we must

have also wards in which a temperature much higher than the usual room temperature can be maintained for the congenitally feeble, the marantic and the premature infant.

The nutrition of feeble infants is always difficult even in a state of comparative health; but with acute illness added these difficulties are greatly increased. The feeding especially must be exact and most carefully done. It requires special equipment and specially trained service. There are many other particulars in which the operation of an institution caring for the very young must be carried on in an entirely different manner than in an adult hospital. It has been my observation and experience that boards of managers, hospital superintendents and head nurses can rarely be made to appreciate them. Forming only one department of a large institution and that usually a small part, it is rarely the case that anything like adequate attention from an administrative point of view is given to the wards for infants and young children.

The statement has sometimes been made that hospitals for infants tend to increase infant mortality rather than reduce it and that sick infants can be better treated in their homes even though these homes are very poor ones. Granted that the hospital care of infants is surrounded with peculiar difficulties not encountered with older patients; granted also that in the past when these difficulties have not been appreciated and overcome, the results have sometimes been far from satisfactory. This only proves that hospitals for infants must be built, equipped and managed for this special work. They have their limitations as do all institutions for the care of children; but they have a most important field to fill.

In the past our hospitals have represented our philanthropy. The modern hospital while not losing its philanthropic character is to be classed among the institutions for higher education. Today every great industrial corporation maintains, often at large expense, its research department. On the findings of the mining engineer, the chemist or the electrical engineer hang decisions which involve millions of capital and the employment of thousands of laborers. The hospital is first of all the research department of organizations for the reduction of infant mortality. Provision for research should be ample and this department should be generously supported. Here are opportunities found in no other institution. The close association of the scientific and practical workers under one roof is of great advantage to both.

There is urgent need at the present time not only of chemical and pathological studies but of the study of clinical problems. Nearly the whole fabric of infantile therapeutics must be constructed anew from the standpoint of recent advances in medical science. It is in the hospital also that observations must be made from which the fullest and most exact knowledge regarding the causes of infant deaths is to be determined. The reports made in the vital statistics of our cities are full of errors, many of them of much practical importance. These errors can only be avoided where opportunities exist for the most careful study of diagnosis during life and where postmortem examinations can determine causes in obscure conditions.

To illustrate, let us take the question of tuberculosis. The old view was that tuberculosis in infancy was an infrequent condition. Hospital observations have however shown tuberculosis to be more common in infancy than at any other time of life; nearly 6 per cent of the infant deaths seen in such institutions are from this cause. Instead of being among the least susceptible, infants have thus been shown to be the most susceptible members of the community. Infantile tuberculosis has simply been overlooked or wrongly diagnosticated. Many deaths formerly ascribed to bronchitis or acute bronchopneumonia and attributed to overcrowding and exposure the hospital has taught us are due to tuberculosis. So also many cases entered in vital statistics as cases of marasmus or simple wasting. Simple meningitis also is a diagnosis which once figured prominently in mortality records; nearly all of these have been shown to be tuberculous. Not only has the hospital and its laboratory shown us the nature of the disease but it has revealed the source of infection. In nearly all the tuberculosis seen in infancy, the bacillus found has been of the human type, not the bovine type. This shows the great cause to be, not milk from infected cows, but contact with human tuberculosis. It is evident, then, that no great headway is to be made in controlling infantile tuberculosis by sterilizing milk nor simply by improving general hygiene, but only through careful separation of infants from cases of tuberculosis, especially of the lungs, in older persons.

Again, the best methods of infant feeding must be elaborated in the hospital. Progress here is to be made by the careful study of a few rather than by statistical results obtained by observation of large numbers of infants. As recently as five or six years

ago it was thought that the proteids of cow's milk were responsible for most of our difficulties and failures in artificial feeding. Recent studies most elaborately carried out in hospitals have shown that the proteids are seldom at fault, but that it is much more often the fats, or the sugars which are to be blamed. All our efforts directed toward rendering the proteids more digestible by varying the diluent, peptonizing, etc., were quite beside the mark.

Until a very few years ago it was generally accepted that acute febrile conditions accompanied by diarrhea in infants who were artificially fed were due to infection, generally through milk, sometimes through other food; and it was believed that by sterilizing milk these attacks would in large measure be prevented. It has now been conclusively shown that, though the food itself may be pure, acute intoxications of the most alarming sort may be the result of the faulty chemistry of digestion due to a relative excess of certain food elements, which for the time being the child is unable to bear. Such facts are of fundamental importance. Correct ideas of infantile digestion not only change our theories of infant feeding, they also in some cases quite revolutionize our every day practice in the milk station and at the home.

It is only in a hospital that certain conditions which cannot be properly managed in the dwellings of the poor, or even in the average home, can receive adequate treatment. Some of these are the most severe forms of acute disease of the intestine or lungs; others are cases demanding special equipment and skilled management like premature infants, and diseases needing special forms of treatment, such as hemorrhagic conditions needing transfusion, cerebrospinal meningitis requiring lumbar puncture and serum injections; still other conditions are those needing surgical intervention, such as intussusception, strangulated hernia, appendicitis, empyema, diphtheria of the larynx or pyloric stenosis. Why not the general hospital for these, you ask. Simply for the reason that though in the general hospital the operation may be perfectly done, such institutions are seldom furnished with the trained nursing or the special knowledge which the after-care of those patients requires if they are to be saved. One may reply that none of these diseases mentioned are very frequent. Yes, but together they make up a large number of infant deaths since outside of a hospital the great majority of them are almost certain to end fatally. Well babies can be

fed; a knowledge of the general means of preventing disease can be imparted and even many mild forms of illness can be treated by the visiting physician or nurse in the homes of the poor. But with many of the more serious conditions children must be sent to hospitals if life is to be saved. Let the visiting nurse and the dispensary physician also realize their limitations and not attempt to treat very sick infants in their homes but send them to a hospital where they can be properly cared for and send them early, not waiting until the symptoms are so bad that the condition is practically a hopeless one.

It is to the modern hospitals with their well equipped laboratories, their trained staff of workers, their wards furnishing opportunities for the most careful study of individual children that we must look not only for progress in the diagnosis and treatment of disease in infants, but for more exact knowledge in the problems of infant hygiene and nutrition upon which the prevention of infant deaths is based. It is only in hospital wards that new ideas in infant feeding or in the diagnosis or treatment of disease can be put to the practical test to see how much of value they may possess. This can be done only to a limited extent in private practice and in out-patient work. The infants must be where all the conditions of life can be controlled and all symptoms watched with the closest attention and this is possible only in a hospital. But the provision for patients must be of the very best, both as regards hygienic surroundings and medical and nursing care.

The risks of infection necessitate that we must in hospital wards for infants aim at conditions which at present are in most institutions realized only in the surgical operating room. You may perhaps think that this is impractical or not worth while. But so surgeons once thought of rigid asepsis. While hospital work for infants is admittedly difficult, when it is properly done the results will bear comparison with those obtained in any other department of medicine.

I have deferred until the last what may perhaps be considered the most important function of the babies' hospital in its relation to the problem of infant mortality. This is its part in education. The educational value to the public of an up-to-date special hospital can hardly be over-estimated. It does much for the community besides caring for the sick poor. It sets a standard of medical practice for the profession of the city. It is an

exponent of modern science in its particular field. Here should the best hygiene be illustrated, the most intelligent feeding practised and the best care of the infant, sick or well, be exemplified. From those immediately connected with the hospital as doctors, nurses and managers these ideas gradually spread to the general public and the institution takes its place in the community among the great forces for social uplift in the department of child welfare. Opportunities are afforded first of all to the attending medical staff. Only in such a field can men be given the range of experience which enables them to be the leaders of thought in all matters relating to the health of young children. The hospital and the specialist are indissolubly connected. The hospital cannot be effectively carried on without the direction of the specialist, and without the hospital the trained specialist is impossible.

The next group benefitted by the educational advantage of the hospital are the medical house staff. From the former resident internes are recruited our best trained junior physicians for the dispensary, the milk depots and school inspection. Nowhere else than in a good hospital can be obtained the opportunities and experience required in all these activities. From the former resident physicians also come the specialists of the future.

If the hospital is utilized as it should be for the instruction of medical students its influence is greatly widened. After graduation these men are scattered all over our country and many distant communities thus become beneficiaries of the hospital's work. No single agency for the reduction of infant mortality can do as much as that which educates the medical profession, through which the public is ultimately reached.

For directly affecting the problem of infant mortality we must not omit to emphasize the great value of the babies' hospital in the instruction of nurses. While it is no doubt true that any nurse with good sense can instruct an ignorant mother in many things relating to the care and feeding of her baby, the efficiency of such a nurse is immensely increased if she has had the advantage of a service in a babies' hospital or a well conducted infants' ward in a general hospital. Only in this way can she obtain that first hand knowledge which is indispensable if she is to do her work well. One of the weakest points in our present system of visiting district nursing is our failure to provide for their suitable training. Something can of course be done by

special courses of lectures such as are given in some cities to their corps of visiting nurses; but this instruction is of necessity very superficial. We must go much further than give a few general lectures on infant hygiene and emergencies and teach how to make up four or five standard milk formulas. The visiting nurse must work much of the time without close supervision and act on her own initiative; unless specially trained her work, though carried on with a praiseworthy devotion, may be very inferior. We must insist that at least our superintending nurses whom we hold responsible for directing their subordinates in their work shall have received an adequate training in a special hospital for infants. Otherwise a vast amount of misinformation is disseminated which subsequent educational efforts find it difficult to remove. But not only must trained nurses be taught in a babies' hospital a knowledge of children and their diseases, a school for the training of nursery maids should be established as a part of the institution. The need of the public in this respect is so great that the opportunities which the hospital affords to give this instruction should be fully utilized. This is a by-product of hospital organization and operation which is of great importance.

Since the largest part of the work for the reduction of infant mortality lies in the direction of the prevention, rather than the cure of disease, it follows that only a small part of it can of necessity be actually done in hospital wards. But the lines of work undertaken must be largely based upon hospital experience. By it rules can be formulated and policies determined according to which the general outside campaign is to be conducted to accomplish the results aimed at. We must know how a disease is spread if we are to prevent it. We must know accurately the principles of infant feeding if we are to reduce deaths from marasmus and acute intestinal diseases in artificially-fed children. Ignorance is not conditioned upon poverty, though it is more frequently found among the poor than the well-to-do.

Much good could of course be accomplished if the acquisition of no new knowledge were attempted and all our efforts were directed simply toward making general application of the knowledge we now possess. But progress would be only for a time, soon we would come to a standstill. Ultimate success in the saving of infant life will demand the use of every new fact in science that bears even indirectly upon our problem. Such facts

are being discovered every year and our work must grow in intelligence as fast as science develops.

It has been well said that to overthrow old errors is quite as important as to discover new truth and in this respect, also, the hospital has furnished notable contributors. Thus as knowledge advances and experience widens, our wasted and mistaken efforts become fewer, and every step taken is a forward one. At the very fountain head of such a broad movement as that for the reduction of infant mortality we must have continually at work a group of investigators who shall tell us what is important and what is unnecessary or superfluous, who shall be a perpetual check and at the same time constant stimulus to our efforts. While we want the whole truth, we want nothing but the truth.

I have said that the activities for the reduction of infant mortality are statistical, preventive and curative. Along each one of these different lines the babies' hospitals have distinct and important contributions to make. If they are to do their part they must have proper buildings, well equipped laboratories for chemical and pathological studies, a corps of attending specialists, and an adequate nursing staff. Organized on this high plane their field of usefulness is a very large one, not only in advancing this special department of medicine, but furnishing the groundwork upon which a proper knowledge of the child sick or well must stand.

14 West 55th Street.

The Beginning of the End:—F. L. Dunlap—better known to the public as “Me-Too Dunlap”—has resigned from his position in the Bureau of Chemistry to take a commercial position at a higher salary than the government paid him. Dunlap, it will be remembered, was the plastic gentleman who took advantage of his chief's absence from Washington to prefer charges against him in the sensational attempt of the “interests” to oust Dr. Wiley from the Department of Agriculture. How trivial and unfounded the charges were is now history. The American public is to be congratulated on Dunlap's resignation. We trust that it marks the beginning of the end of a régime that has made effective work in the Bureau of Chemistry impossible. When McCabe, the self-confessed tamperer with official documents, and Wilson, the well-meaning but superannuated department head, also feel the spirit of resignation moving within them, a nation-wide sigh of relief will go up from those who have suffered from the comparatively unfettered machinations of the food-dopers, “patent-medicine” fakers and drug adulterators.—J. A. M. A., lix, 885.

History of Legislation in Ohio Regulating the Practice of Medicine

By LOUIS H. WINCH, Cleveland, Chief Justice, Circuit Courts of Ohio.

It is a curious fact that from 1833 to 1868, a period of thirty-five years, there was no law in the state of Ohio regulating the practice of medicine, although the state legislature, as early as 1811, thought the matter of sufficient importance to require legislation. On the fourteenth day of January of that year, the legislature passed "an act regulating the practice of physic and surgery." Evidently the members thought they must justify their action, and so they adopted the very unusual course of heading the law with a preamble, which reads as follows:

"Whereas, the practice of physic and surgery is a science so immediately interesting to society that every encouragement for its promotion should be given, and every abuse of it, so far as possible, suppressed: Therefore, be it enacted, etc."

There were ten sections to this law; the first divided the state into five medical districts, "each district to contain three medical censors or examiners, to be appointed by the general assembly of the state of Ohio, who shall hold their appointments during good behavior, or until such time as a medical society shall be incorporated in this state."

The second section appointed three censors for each district "for the purpose of examining candidates for the practice of physic, surgery, or midwifery," George Wilson, John McDowell and Thomas Campbell being named for the ten counties, including Cuyahoga, in the fifth district.

The third, fifth and sixth sections read as follows:

"3. That when any person is desirous of exercising the profession of a physician or surgeon within the limits of this state, as a means of obtaining a livelihood, he shall first obtain a license for that purpose from some one of the medical boards above mentioned."

"5. That no person shall receive a license to practice in either of the above branches, who shall not produce a certificate to the satisfaction of the board, that he is a person of good moral character, and has attended three full years in the theory and practice of medicine, under the guidance of some able physician or surgeon, or a license from some medical society, showing his having been admitted as a practitioner, and give satisfactory

answer to such questions as may be put to him by the censors or examiners, in anatomy, surgery, materia medica, chemistry, and the theory and practice of physic.

"6. That if any person who shall not be, at the time this act shall take effect, a resident of this state and a regular practitioner of physic or surgery, shall presume to act in the capacity of a physician or surgeon without license as required by this act, except in cases of urgent necessity, and where no regular physician can be obtained, the person so offending shall be deprived of the assistance of the laws of this state in the collection of any debts or fees which may arise in such practice."

Other sections provided for filling vacancies in the office of censor, prescribed the form of license, required the several boards to meet on the first Monday in June and the first Monday in November, in every year, for the purpose of granting licenses, which might be granted by a majority of the board upon the payment of a fee of five dollars, the name of every person so licensed to be immediately published "in some public paper in this state." Each board was authorized to keep a seal and appoint a secretary, the latter to record all official proceedings and grant certified copies thereof at twelve and one-half cents for every hundred words. The place of meeting for each board was specified, Steubenville being the meeting place for the fifth district, so that a medical student in Cleveland who desired to be licensed to practice medicine had to take a long journey on horseback for the purpose of taking the examination.

This law went into effect on the first day of May, 1811, but was repealed on February 8, 1812, and a medical society incorporated and vested with the power of granting licenses. This act divided the state into seven medical districts, the counties then comprising the Western Reserve being the sixth, with headquarters at Warren, in Trumbull County.

This society was authorized to elect necessary officers and make by-laws not repugnant to the laws of the state, provided "that no such by-laws shall go to the establishment of any prices in the practice of physicians or surgeons, and that no physicians shall in anywise be bound by any by-law going to that effect."

The society was also authorized by a majority of their votes, to expel members for misdemeanors relative to the society or for

incapacity as a physician or surgeon, to appoint an examining committee in each district, to examine candidates and license them and to confer honorary degrees.

It was also made the duty of the several members of the society to communicate useful information to each other in their district meetings, to transmit to an annual convention "such curious cases and observations as may come to their knowledge"; and the convention was directed to publish such extraordinary cases and such observations on the state of the air and on epidemical and other disorders as they may think proper, for the benefit of the society and citizens in general."

The society was authorized to levy a tax of two dollars upon each of its members, collectible by suit, and the fee for a license was fixed at five dollars. As a penalty for practicing without a license, not only was the benefit of the laws for collection of fees forbidden, but the person so practicing was made liable to a penalty of from five to one hundred dollars, one half to go to the society and the other half to the person suing for it.

This act was repealed and the medical society abolished the next year, January 14, 1813, and another act similar to the act of 1811 was passed, dividing the state into seven medical districts, appointing censors or examiners in each, to hold office during good behavior, with authority to grant licenses to practice physic and surgery, but providing that the only penalty for practicing without a license or diploma should be a fine of not more than seventy nor less than five dollars, payable one half to the medical board of the district, and the other half to the person suing for it.

This act was amended January 28, 1817, by dividing the state into eight medical districts, designating the time and place for meetings of the censors within each district, providing that they might elect officers, make by-laws, and "admit such persons to be members of their society as they may think proper," and providing for an annual election of seven censors by each "society."

The act of 1817 further required that licenses granted by the censors should be signed by the president of the court of common pleas within the county of the applicant's residence, but that any one of the censors might grant a permit to an immigrant physician to practice until the next regular meeting of the society.

The penalty for practicing without a license was a fine in any sum not exceeding two hundred dollars, collected as other fines, and inability to collect any debts due for such practice.

This act was amended January 30, 1818, so as to provide "that any person having received the degree of doctor of medicine in any university or other medical institution within the United States, and wishing to practice in this state, shall, on application, be entitled to a license from any of the boards of censors, without examination or paying the fee required by the act to which this is an amendment."

This amendment also provided for the recording of licenses by the secretaries of the several districts.

February 22, 1820, an act was passed authorizing the organization of new medical districts, carved out of original districts, upon the application of not less than ten members of any medical society in the state to the board of censors of the society or district to which they belong.

At this time it was again provided that no medical society should have authority to make any by-law or rule regulating or establishing the pay of physicians or surgeons, and the ninth and tenth sections of the act of 1817 were repealed, thus abolishing all penalties for practicing without a license and the power to grant temporary licenses to immigrant physicians.

The act of 1817 and all of its amendments were repealed January 15, 1821, by an act which constituted each of the circuits of the court of common pleas a medical district, and appointed five censors for each district with power to examine candidates for the practice of physic and surgery. Doctor David Long was the censor appointed for Cuyahoga County in the Third District. The censors of each district were to select annually one delegate to a convention to be held at Columbus, the delegates thus selected to be a corporation with exclusive power to grant licenses to practice physic and surgery. This corporation was empowered to prescribe the periods and methods of study and the qualifications of candidates, the period of study to be not less than two nor more than four years.

The board of censors of each district, after examining a candidate for the practice of physic and surgery, if they deemed him qualified, were to give him a permit to practice within the district until the next meeting of the convention, which was to determine, by ballot, whether the candidate was worthy of a license, and if

a majority vote was in his favor, its president and secretary issued him a license authorizing him to practice in any part of the state.

Graduates in medicine, upon exhibiting their diplomas to the clerk of one of the medical districts, might practice and be eligible for the office of censor.

Nongraduates practicing without a license were denied the benefit of the laws in the collection of their professional debts.

It was made the duty of the medical convention to elect annually two of its members as visitors to attend the commencements in the medical college of Ohio, join with the faculty in examination of candidates for degrees, vote on their admission and subscribe their diplomas. It was also made their duty to report the state of the institution annually to the legislature and the convention.

The convention was also granted the privilege of selecting annually two students of medicine, who were destitute of the means of acquiring collegiate instruction in the profession, and recommend them to the medical college of Ohio, which should extend to them, gratuitously, all its advantages.

The convention was further enjoined "to encourage in the different districts, the establishment of such societies of emulation as may appear to them to be calculated to promote the improvement of the profession."

This law remained in force until February 26, 1824, when it was repealed, and twenty medical districts created for the establishment of medical societies, the counties of Cuyahoga and Medina forming the nineteenth. The persons named in the act for each district and their associates, to the number of five or more, were enjoined to meet and organize as medical societies, which should thenceforth be bodies politic and corporate, with the usual powers of such bodies including the right to assess its members not exceeding three dollars annually, to employ its funds for any scientific or literary purpose connected with the science of medicine, and to provide for the admission and expulsion of members.

Each society was to select from three to five censors, whose duty it should be to examine students in physic and surgery and recommend licenses to be issued by the society authorizing the practice of medicine anywhere in the state. No student was to be examined who should not produce satisfactory evidence that

he was of good moral character and had studied regularly with some reputable practitioner for three years, unless he had received a collegiate education, in which event two years' study of medicine was sufficient.

The societies were to meet annually, all regular physicians were to be admitted as members, the duties of the secretary and treasurer were prescribed, licensed physicians were required to deposit copies of their licenses with the clerk of the common pleas court in the counties of their residence, and no persons other than members of said medical societies were permitted to practice medicine or surgery in the State, under penalty of a fine of ten dollars for each violation of the act and inability to collect demands arising out of such practice.

The medical societies were forbidden to fix physicians' fees.

Each society was required to elect a delegate or proxy to a meeting to be held at Columbus in December, 1827, which meeting should organize a general medical society of Ohio, with visitatorial powers over the district societies and power to increase the number of district societies.

In 1825 some changes were made in the districts and the censors of a district were allowed to issue permits to practice within the district during intervals between regular meetings. At the same session of the legislature a law was passed requiring all lawyers and physicians who had practiced more than two years to pay a state tax of not less than five nor more than fifty dollars annually, the court of common pleas in each county to fix the amount payable by the lawyers and physicians of that county, but in 1830 this tax was limited to the sum of five dollars.

Further changes in the medical districts were made in 1826 and the year following, and in 1831 that part of the act of 1824 which imposed a penalty of ten dollars for practicing without a license, was repealed.

On January 15th, 1833, the act of 1824 and all subsequent acts in relation to the practice of medicine were repealed, and the state was without any law on the subject until 1868.

May 5, 1868, an act was passed "to protect the citizens of Ohio from empiricism, and elevate the standing of the medical profession," and it provided that it should be "unlawful for any person within the limits of said state, who has not attended two full courses of instruction and graduated at some school of medicine, either of the United States or some foreign country, or

who can not produce a certificate of qualification from some state or county medical society, and is not a person of good moral character, to practice medicine in any of its departments for reward or compensation, or attempt to practice medicine, or prescribe medicine or medicines, for reward or compensation, for any sick person within the said state of Ohio;" any person who had been continuously engaged in the practice of medicine for a period of ten years or more was to be considered to have complied with the provisions of the act.

A violation of the act was punishable with a fine of not less than fifty nor more than one hundred dollars for a first conviction, and with the same fine and imprisonment in the county jail for thirty days upon conviction for a second violation.

It was provided in the act that it should not apply to any person practicing dentistry, and three days later an act was passed regulating the practice of dentistry.

The act of 1868 went into the revised statutes of 1880 as section 4403.

In 1881 a law was passed prescribing penalties for selling and using fraudulent medical diplomas, and in 1885 section 4403 was amended so as to provide that any person who shall have graduated at any school of medicine in any state or foreign country in which any condition or restriction is imposed by the laws thereof upon the practice of medicine by the graduates of medical schools in Ohio, should be subject to the same restrictions or conditions in the practice of medicine in this state. It was also provided that any person violating this section should not be entitled to any compensation for services rendered.

Thus the law remained until 1896. In that year a state board of medical registration and examination was created, consisting of seven members so appointed that after the first appointment one should be appointed by the governor annually to serve for seven years. The board was provided a president and treasurer of its own members and a paid secretary.

Under this law no person was permitted to practice medicine or surgery without complying with the requirements of the act. Graduates were required to present their diplomas to the board and if the board found the diploma genuine and from a legally chartered medical institution in good standing, as determined by the board, it was to issue a certificate to that effect, which, when

left with the probate judge of the proper county for record, was to be conclusive evidence that its owner was entitled to practice medicine or surgery.

If a legal practitioner, but not a graduate, proof of that fact must be made to the board, and a similar certificate issued and left with the probate judge for record.

If engaged in practice, but not a legal practitioner or graduate, the applicant for a certificate must present himself to the board for examination.

The board was authorized to refuse a certificate to a person guilty of a felony or gross immorality or addicted to the liquor or drug habit to such a degree as to render him unfit to practice, and for like causes certificates might be revoked. Appeal from the refusal of the board to grant a certificate or from revocation of a certificate, to the governor and attorney-general, was provided. Fee for a certificate was five dollars and twenty-five dollars for an examination.

Midwifery was also regulated by this act, and provisions made for determining whether any person should be regarded as practicing medicine or surgery within the meaning of the act.

Penalty for practicing without a certificate was not less than twenty nor more than five hundred dollars fine or imprisonment in the county jail for not less than thirty days or more than one year, or both.

Filing another's diploma as one's own, was made a felony punishable with imprisonment in the penitentiary for from one to five years.

April 14, 1900, this law was amended so as to provide that all persons desiring to practice medicine, except those licensed under the act of 1896, should take an examination.

Applicants must be twenty-one years of age and of good moral character, and produce either of the following credentials: A diploma from a reputable college granting the degree A. B., B. S., or equivalent degree; a diploma from a normal school, high school or seminary, issued after four years of study; a teacher's permanent or life certificate; a medical student's certificate issued upon examination by any state board; a student's certificate of examination for admission to the freshman class of a reputable literary or scientific college, or a certificate of his having passed an examination conducted under the direction of the state board of medical registration and examination; in addition to the fore-

going the applicant must produce a diploma from some legally chartered medical institution in the United States in good standing, as defined by the board, or a license approved by the board which confers the full right to practice all branches of medicine or surgery in some foreign country.

Upon approval of these credentials by the board, he shall be examined in anatomy, physiology, therapeutics, the principles and practices of medicine, surgery, obstetrics, and such other subjects as the board may require.

If the applicant passes the examination and pays a fee of twenty-five dollars, the board issues its certificate to that effect, which, when left with the probate judge for record, is conclusive evidence that its owner is entitled to practice.

Examination of physicians or surgeons duly admitted to practice in other states, may be dispensed with by the board, upon payment of a fee of fifty dollars, provided the laws of such other states demand qualifications of equal grade with those required in Ohio, and accord equal rights and privileges to physicians and surgeons of this state.

By this act, osteopaths, holding diplomas from schools of osteopathy, wherein the course of instruction requires at least four terms of five months each in four separate years, upon passing an examination in anatomy, physiology, chemistry and physical diagnosis, are permitted to practice their profession, but not to administer drugs or perform major or operative surgery.

In 1902 further provisions were adopted regarding the practice of osteopathy, and a board of examiners constituted and examination required for certificates to practice osteopathy.

March 19, 1906, the act of 1902 was so amended as to require of doctors from other states who desire to practice here, that the fee to be paid by them should only be equal to the fee required under similar circumstances from citizens of this state who seek to practice in such other state.

Finally, in 1908, an act was passed to revise and consolidate the laws relating to the appointment, powers and duties of the state board of health, the state board of medical registration and examination, the Ohio board of pharmacy and the state board of embalming examiners. This act contains 99 sections and sets forth the law as it is today, and makes little change in the law as it stood before, except that it provides that medical examina-

tions shall be held at four places, to-wit: Cincinnati, Columbus, Cleveland and Toledo, but this provision was repealed in 1911.

The statutes now governing the practice of medicine, midwifery and osteopathy, are known as Sections 1262 to 1295 inclusive of the General Code of Ohio.

The Treatment of Chronic Constipation

By E. O. HOUCK, M. D., Cleveland.

Doubtless there is no more common disorder than chronic constipation, and it is further doubtful if any minor ailment of the body causes more distress than this condition. Every practitioner of medicine has at some time or other been at his wits' end as to what to do to relieve chronic constipation. His usual procedure is to dispense some one or other favorite cathartic or laxative pill or perhaps hand his patient the sample saline effervescent which the last detail man left at his office. The doctor in this case does not even hope to permanently relieve his patient, and the patient in turn soon discovers that the doctor's pills and powders are no more effective than those that were obtained from the druggist, or perhaps not as effective as the samples that were left on the front porch.

All of this might be food for thought for Mr. Abraham Flexner of the Carnegie Foundation as to the inadequacy of the curriculum of the average American medical school properly to train men to practice medicine. But if my memory serves me correctly cathartic pills and potions are extensively advertised in Europe and proprietary "cures" exploited in the leading medical journals. Doubtless, too, Oriental papers and medical journals are replete with similar advertisements.

It is evident, therefore, that constipation is a very protean disorder, and I dare say not much more common among Americans than among other classes of people who are "educated" in therapeutics by means of lavish medical advertisements. I do not mean to be facetious in saying this either, for I believe that the most common etiological factor in causing chronic constipation is the cathartic habit. This habit is formed so insidiously that the cathartic taker scarcely realizes it until his favorite pill or potion has begun to lose its virtue, when another is tried, only in short time to be found wanting; then a third variety is tried, and then a fourth and so on, until such a vicious state of affairs is estab-

lished that an effectual evacuation of the bowels is not obtained until huge doses of oil or salts are taken, which in time must be supplemented with an enema, either high or low, before the victim is relieved.

It might reasonably be objected that there must be something seriously wrong with either the chemical or mechanical factors of digestion to produce such a serious stasis of food residue, but a little experience in the treatment of this disorder will prove the contrary to be the case, at least in the majority of instances. The cathartic habit originates in the all too common neglect of "nature's call" or to too great anxiety over failure of the bowels to move for a day or two. The cathartic habit is comparable with the catheter habit and every physician and surgeon knows how easily the latter is acquired and how difficult to overcome.

Now it is not my purpose to dwell at length on the etiology of constipation; the etiological factors can be found in brief in any standard medical work and for a more comprehensive study the reader is referred to any well known monograph on this subject, particularly Hertz' "*Constipation and Allied Intestinal Disorders*." It might not be amiss, however, to mention the frequent association of neurasthenia and similar functional nervous disorders with chronic constipation. Whether constipation occurs as a cause or an effect in these cases I do not know, but I do know that anxieties, whether domestic, social or business, will often be associated with at least a temporary costiveness. Chronic constipation will often, too, be found as a family disorder. I am particularly impressed with the frequency of constipation among individuals having the build spoken of by Cohnheim as the "*habitus enteropticus*." Another factor in the production of constipation, though not so frequent and consequently often overlooked, is local disease of the rectum and neighboring organs. By neighboring organs I do not mean alone the uterus and its appendages, but also inflammatory troubles of the urinary organs, whether male or female.

There exists still another group of cases which deserve mention and which are associated with definite anatomical alterations in or about the intestinal canal. In this group occur those cases of constipation associated with more or less chronic obstruction of the bowels due to strictures, diverticulæ, rudimentary bands of adhesions, anomalous kinks, atypical development and position—the latter congenital or acquired—of the various

divisions of the colon. It is this group of cases which have lately been the source of some study and much activity—the latter largely of the pernicious kind—among a few of the leading surgeons. Mr. Lane, it appears, was the pioneer who “blazed the way” to this frontier way in abdominal surgery, by executing *intra vitam* various short-circuiting routes from the ileum to the pelvic colon. However empiric the various operative procedures may be in the treatment of constipation, they at least have lent stimulus to the study of the processes of defecation.

Based on a study of the physiology of intestinal movements Hertz has defined constipation as “a condition in which none of the residue of a meal taken eight hours after defecation is excreted within forty hours.” As to the classification of the various types of constipation, much has been said and little demonstrated as to the two common types, “atonic” and “spastic.” In order to obviate this uncertainty in classification Hertz has suggested a physiological classification “according to which of the two great physiological processes which maintain regular action of the bowels is deranged.” These two processes are, firstly, the passage of the residue of the food from the stomach to the pelvic colon and, secondly, the complete evacuation of the pelvic colon at proper intervals. In the first class the passage of the residue of the food through the intestines is delayed whilst defecation may be normal, whereas in the second class there is no delay in the arrival of feces in the pelvic colon but their final excretion is not adequately performed. The two processes may exist in the same patient, but in the vast majority one is much more prominent than the other and alone requires treatment. This classification further embraces the clinical varieties of constipation in which defecation occurs with insufficient frequency, in which the stools are insufficient in quantity (quite common) or are abnormally hard and dry; also the pathological cases in which the passage through the intestines is delayed and in which defecation is inefficient.

Diagnosis: It is not always easy to differentiate between constipation due to delays in the residue of the food reaching the pelvic colon, and that due to incomplete excretion. To establish an accurate diagnosis it will be necessary to have several skiagraphic examinations made after previously giving the patient a bismuth meal. By means of these examinations the exact

location of the delay may be determined. Another means, though less accurate, is to give the patient charcoal lozenges immediately after an evacuation of the bowels and then to note when the dark colored feces appear. For practical purposes, however, these examinations will often be unnecessary. Digital or proctoscopic examination of the pelvic colon will determine whether defecation is inefficient and this examination, with the history of the patient and an abdominal examination, will often be enough to determine whether the constipation is only functional or whether dependent on a gross anatomical change. When constipation is due to faulty habit there is as a rule no history of pain during the passage of flatus or feces, whereas the contrary is the case when constipation is due to organic disease. The clinical history will also reveal whether the stool is abnormally hard and dry or insufficient in quantity (the average weight of the feces being 135 grams) or whether evacuation occurs with insufficient frequency. Constipation dependent upon an abnormally long colon will have to be diagnosticated by means of X-ray examination.

Treatment: Time will not permit and want of space will surely forbid a discussion as to the many kinds of treatment that have been employed for chronic constipation. All varieties of treatment have undoubtedly some cures and many failures to their credit. A word here might be said as to prophylaxis. Certainly the laity are too free in their use of cathartics and when they do employ them exercise no discrimination in the selection of drugs. Some of the worst cases of constipation encountered, and at the same time the most difficult to relieve, are those who are accustomed to dose themselves with salts or castor oil. Physicians, too, are often too free and also indiscriminate in prescribing cathartics for their patients. I cannot understand the necessity in giving, almost daily, cathartics to patients who are recovering from surgical operations and who otherwise are getting along nicely. How many women date months and years of bowel discomfort to a previous confinement, following which castor oil or enemata were used too freely? A word as to the drug treatment of chronic constipation. While I do not deny the necessity of being obliged to resort to the occasional dose of laxative drugs, they should be used as adjuvants only. They should be employed only occasionally and under the direct supervision of the physician.

The important desideratum is to reestablish the habit of regular and complete evacuation of the bowels. How can this be accomplished? It certainly cannot be done unless you have the earnest cooperation of your patient. I say earnest advisedly, for the reason that unless your patient will agree, and abide by the agreement with determination, to follow directions absolutely, the treatment will result in failure or at least partial failure. The habit of neglect of the bowels is almost as difficult to overcome as any other deleterious habit. Punctuality in going to stool must be rigidly enforced. The time selected should be dependent somewhat on the patient's convenience and also as to what appears to be nature's time. The latter is such time a patient says his bowels move either spontaneously or even with the aid of a laxative. This time corresponds to about one hour after meals, when intestinal peristalsis is most active. Following Howard A. Kelly's suggestion I have the patient rest the feet on a low, stout box placed directly in front of the closet seat when at stool. This is done with a view of obtaining a more crouching position in order to increase the expulsive force of the abdominal muscles. I also emphatically state to the patients that they should not employ any cathartic whatsoever without permission. Positive assurance of a cure should also be given. This assurance should be given without any outward appearance of reservation, it being understood that a reasonable examination of the patient has been made beforehand. Following these few hints, together with sufficient determination upon the part of the patients, will suffice to cure many of their disorders.

For the past few years, in order more readily to obtain the cooperation of the patients and also more easily to keep them under observation and control, I have followed a plan suggested by J. Alexander MacMillan of Detroit. This plan consists in using rectal tampons of ordinary surgical cotton or lamb's wool. The tampons are inserted by means of a Kelly proctoscope with the patient in the knee-chest or left lateral position and are permitted to remain in the rectum till they excite peristalsis and a strong desire to defecate. This usually occurs in from two to six hours. The patients are then instructed to go to stool the following day at the appointed time. Whether evacuation of the bowels occurs at this time or not, the rectal tampon should be inserted on the second day and on alternate days for a period of about two weeks. After this, the interval between treatments should be

lengthened until the habit of regular and complete evacuation of the bowels is established. This simple plan I believe will relieve the majority of cases of chronic constipation. I have had no experience with the use of hormonal and have refrained using it because of several fatalities reported. Regulin has proved unsuccessful in my hands. I have long since given up the use of enemata, high or low—whether of oil or soap suds—in the treatment of chronic constipation, because they are very troublesome to the patient and unclean in their application and are likely to be negligently given. In the light of experiments conducted by W. B. Cannon of Harvard University and experiments of A. F. Hertz and of Cook and Schlesinger of Guy's Hospital, London, the MacMillan treatment of chronic constipation, not associated with any definite alteration of the bowel, rests upon a rational understanding of the normal stimuli of defecation.

4911 Franklin Avenue, N. W.

The Open Air Schools of Cleveland

By J. C. PLACAK, M. D., Cleveland, School Medical Inspector in Charge of Tuberculosis and Open Air Schools.

Our open air schools have been in operation long enough to demonstrate their value toward aiding the weak child in obtaining an education and at the same time improving in health. Here as elsewhere the open air schools have proved their worth as a valuable aid in the great battle which is being waged against the "White Plague." That the establishment of the open air schools in this community, thereby bringing the children who attend them to a greater power of resistance not only to tuberculosis but to other diseases as well, will be an enormous economic saving to the community, is beyond dispute. If we accept the figures of Professor Irving Fisher of Yale University, that the money cost of tuberculosis, including capitalized earning power lost by death, exceeds \$8,000 per death, then we have saved the community, by bringing the children in our open air schools to an increased power of resistance, many thousands of dollars.

Furthermore, children who were before backward and a drag upon the other pupils have been able to forge ahead in their studies, even surpassing their normal associates. Many who were before unable to keep up in the regular classes were

compelled to stay back in the same grade, entailing again an expense upon the community.

In order to make the work of the open air school more efficient a committee was formed, known as the "Committee to cooperate with the Board of Education in aiding the work of the open air schools." On October 29, 1911, this committee, which was composed of the Director of schools, Mr. Charles Orr, and representatives from the Medical Inspection Department of the Public Schools, the Antituberculosis League, the Board of Health, the Fresh Air Camp Association and the Federation of Women's Clubs, met and discussed ways and means of providing suitable clothing and nourishment for the children who attend these schools. The director of schools agreed to provide a teacher and necessities for class work, the Antituberculosis League the necessary clothing. Through the kind efforts of H. G. Sherman, Supervisor of Medical Inspection, a large part of the materials for nourishment were secured gratis from concerns which dealt in the necessary food supplies. This was a great saving and cut down the *per capita* cost.

The diet of these children consisted principally of milk, soups, bread, peanut butter, jellies of various kinds, and cocoa, served at ten in the morning and two in the afternoon. The clothing, as supplied by the Antituberculosis League consisted of an Eskimo suit made of heavy blanket material, the so-called "lumber jacks" stockings and a heavy felt lined arctic shoe. Many of the suits were made by the girls in the sewing classes of the Technical High School. The remainder were made by tailors at a nominal cost. The average cost per outfit was \$4.95.

The children admitted to the Open Air School are the so-called pretuberculous, poorly nourished and anemic, and a few cases of active tuberculosis. On account of the lack of facilities on the part of the city for the care of the actively tuberculous children it was necessary to enter them in the open air schools. Proper precautions were used in all cases to prevent the spread of the disease to the other children.

The result obtained, both in physical improvement and mental alertness, has been very marked. The points to which special attention should be called are the improvement in the general health of these children; the great advance in scholarship, as compared with that made by these same children when in the

regular schools; and the remarkable freedom of these children from attacks of coryza, tonsilitis and bronchitis, as compared with those in the regular schools. There has been comparatively little absence during the term. These points have been proven, which means that, were the same conditions prevalent in all schools, many pupils would advance faster in their studies, fewer scholars would drop out before the completion of their courses, and fewer would be absent during their courses. It costs the city the same amount, practically, for a pupil who is registered in a school, whether he is present or absent, and if a pupil attends school for a few years and then becomes a cripple or dies, the city derives no benefit from the money expended upon him. Thus, purely as a matter of economy, the carrying out of the principle of the Fresh Air School in all schools would mean a saving of much money.

From the standpoint of practical education I quote from a report of Mrs. Christine Walker, Principal of Rockwell Open Air School: "And what of the value of the Open Air School from an educational standpoint? It has been said and with truth that an education without health is of little value, but is it not equally true that health without education is not greatly to be desired?"

Then the school which so greatly emphasized the care of the physical body of the anemic child must give equal care to the training of the mind, in order to be of the greatest service. Do results prove that the mental growth has kept pace with physical gain? The pupils placed in the Open Air School at the beginning of the year just closing were all anemic. Among them were children afflicted with eye troubles, curvatures of the spine, and various other ailments, which gave them not only debilitated bodies but which made many of them either morbid or irritable. With every pound of firm flesh which has been added to the physical body came a decided change for the better in disposition, accompanied with increased mental vigor.

These children have grown positively cheerful. Mental tasks have ceased to be a hardship, and many of these open air pupils today are farther advanced in their school work than are the normal pupils from whose classes they were chosen at the beginning of the year.

Then, too, there is another side to the life in the Open Air School. Through contact with one another during the lunching

periods, the social side has been vitalized, and it is a great pleasure to note the growth of thoughtfulness and care for others' needs in this little community, having at least one interest in common, the regaining of the priceless blessing of health." Reports from other schools by the teachers all show the wonderful mental improvement in the children. In the months of December and January four schools were established, located at Rockwell, Hodge, Murray Hill and the Friendly Inn with an enrollment of 114 pupils.

The physical improvement in most of these children has been remarkable. A large majority of them have improved to such an extent that they have been able to resume their studies in the regular schools. One child at Murray Hill School, who had an active case of tuberculosis, after several months in the Open Air School completely regained her health.

At Murray Hill school excellent results have been obtained. During the first two months of school the children were seated in the temporary school on the roof and received their nourishment regularly. All children gained both in weight and physical condition. In November, pending the completion of a permanent structure, the children received their instruction indoors. During this time of indoor work they received their nourishment in greater quantity than when on the roof. In spite of this fact all lost in weight. After two months of outdoors after completion of the permanent structure all gained in weight and physical signs.

The following tabulations show the weight changes obtained: Murray High school: Highest gain, 14 lbs.; lowest gain, $\frac{1}{2}$ lb.; highest loss $3\frac{1}{4}$ lbs.; lowest loss, 1 lb.; average gain, 4.7 lbs. Rockwell school: Highest gain, 13 lbs.; lowest gain, $1\frac{1}{2}$ lbs.; average gain, 5.8 lbs.; no losses. Hodge school: Highest gain, 6 lbs.; lowest gain, 1 lb.; highest loss, 4 lbs.; average gain, 2.9 lbs. Eagle school: Highest gain, $9\frac{1}{2}$ lbs.; lowest gain, $\frac{1}{2}$ lb.; only loss, $\frac{3}{4}$ lb.; average gain, 3.2 lbs.

At Murray Hill school a cold air room was established in March. Good results were obtained by many of the occupants of this room. The children in the Open Air Schools have carried their open air teachings into their homes, thereby doing a tremendous amount of good in a manner in which it could not be accomplished otherwise.

Thanks are due to the principals and teachers in the Open Air Schools for their kind assistance in making the results obtained possible. A great deal of good has been accomplished; a great deal more may be achieved by the opening of more Open Air Schools.

Review of the Progress of Medicine

By JOHN PHILLIPS, M. B., and V. C. ROWLAND, M. D.

Gastric Ulcer

It would seem, from the wide disagreement of both medical and surgical writers on gastric ulcer, that, in spite of the large literature and the abundance of case reports, the main difficulty is in accurate diagnosis. In the anxiety to get statistical results in large series of cases, it is easy to include many cases in which the diagnosis is not established. It is a well recognized fact that many cases clinically diagnosed as ulcer are not demonstrated so at operation. Temporary improvement following gastroenterostomy is no evidence of ulcer. In an organ like the stomach, which is vastly more often disturbed reflexly by disease of near or remote organs, by a general intoxication, or as a manifestation of nerve strain than it is by any intrinsic disease, the burden of proof is always against the diagnosis of ulcer in cases of doubt. The frequency of ulcer has been variously given at from 1 to 5 per cent of all autopsies. The proportion of ulcers or scars of ulcers seen at autopsy at the Lakeside Hospital during a period of three years was about 1 per cent. In the Dispensary, out of the large number of stomach cases the history of hematemesis is quite uncommon, yet Osler says that combined statistics collected from all sources show that hematemesis occurs in 28 per cent of all cases of gastric ulcer. Many writers give a much higher proportion. The conclusion seems fairly well justified that gastric ulcer is too frequently diagnosed.

There are two types of ulcer, one the round peptic ulcer occurring more commonly in young women, the other the large calloused ulcer, occurring more often in elderly men. It is in the first class especially, that the difficulties in diagnosis arise; for the physical signs are less distinctive and the patient is frequently of the type, age and sex in which functional nervous disturbances are most common. They are frequently also constipated and

anemic and are peculiarly refractory to treatment; and largely from this very fact and their usual hyperacidity the diagnosis of ulcer is assumed without further evidence. The various forms of nervous dyspepsia probably constitutes the largest class of cases simulating gastric ulcer. Chronic constipation frequently aggravates the condition or makes the latent tendency manifest. These cases usually do not vomit, unless the vomiting is obviously hysterical in origin, but have eructations of gas, and distress after eating and frequently enough sharp pain and tenderness in the epigastric region. With hyperacidity, the pain may come two or three hours after eating, that is, at the height of digestion. If this symptom is associated with epigastric tenderness it is easily attributed to duodenal ulcer, which then will explain everything. However, in the functional cases, the attacks are frequently traceable to some form of bodily or mental strain, such as overwork, worry, prolonged lactation, loss of sleep or may be induced by an unusually severe or obstinate constipation or, in a very sensitive individual, by a very moderate degree of constipation. The symptoms are often too promptly relieved to be attributable to organic disease, and on the other hand, various abuses or the ingestion of coarse or quite indigestible foods, such as sour pickles, cucumbers or hard fried potatoes or rich pastry, seems to cause no distress whatever. Capricious appetite and food tolerance, when not associated with the fear of pain after eating, are always strongly suggestive of a functional disturbance. The tenderness in these cases is practically always over the celiac plexus in the epigastrium in the median line and there may be very definite skin hyperesthesia. The stomach contents on different examinations may show very marked variations from hyperacidity to anacidity. Frequently there is little variation from the normal with symptoms of hyperacidity, indicating a hypersensitive condition of the gastric mucosa.

The anemic dyspepsias are also important in the differential diagnosis from gastric ulcer. Frequently anemia and ulcer are associated and Mayo says the ulcer may be cured by treating the anemia. Since the same anemia may produce the same symptoms without ulcer as with it, and since ulcer may exist entirely without symptoms, the question arises as to whether the ulcer in some cases is not entirely secondary and relatively unimportant. This, of course, applies largely to the acute peptic ulcer.

Hale White and others have written extensively on the subject of gastrostaxis or oozing of blood from the gastric mucosa, without gross lesion, the condition occurring especially in young anemic girls with symptoms of gastric ulcer. This hematemesis may be profuse and even fatal and still the closest search of the gastric mucous membrane at autopsy reveal no defect. The endless controversy as to whether there is a tiny undiscovered ulcer seems rather a hyperrefinement, at least so far as treatment is concerned. The only possible surgical treatment for such cases is gastroenterostomy and the recent tendency of stomach surgery is toward the ulcer itself rather than to rely on simple gastroenterostomy.

In regard to the treatment of the peptic ulcer of young people, it is quite generally accepted that medical treatment is to be thoroughly carried out first by prolonged rest in bed. As to diet, it seems quite necessary to individualize. The Leube, Lennhartz and other standard diets all seem to succeed in certain cases. Here again the uncertainty of diagnosis modifies the statistical results. Relief by any treatment cannot be taken as evidence in the diagnosis of ulcer, for almost any stomach disorder may be relieved by rest in bed. Several courses of treatment should also be carried out in these cases of acute ulcer, even when the diagnosis is fairly well established, for the muscular coat of the stomach is usually not involved and surgical treatment hardly applicable. Kocher, in the current issue of the *Archiv für klinische Chirurgie*, says that simple ulcer can rarely be diagnosed at operation except by exploratory gastrotomy and rarely comes to surgical treatment. If the ulcer causes only slight injection of the peritoneal coat, it should be treated medically. He also states that acute bleeding ulcer should not be treated surgically, that the results in his own cases so treated were bad.

In the callous type of ulcer in older people, the diagnosis is usually less difficult, the nervous factor less prominent and the local signs more marked. Medical treatment is in general less satisfactory and surgical treatment more indicated for that reason and also because of the possibilities of malignant change or extensive perigastritis with abscess or fistulae into adjacent organs. For these reasons, too, exploratory operation is justifiable at an earlier stage than in the first class of cases. Payr and others have advocated the most radical procedures, such as excision of the whole ulcer bearing area or partial resection of the stomach so

as to remove the entire thickened and infiltrated portion of the stomach wall. He prefers an end to end anastomosis without gastroenterostomy when possible. When normal stomach walls are sutured together there is active power of healing. Payr has shown extensive thrombosis of vessels in the ulcer zone with such low tissue vitality, that healing of an ulcer under any circumstances would be almost impossible. His cases with extensive resections have shown surprisingly little disturbance in the motor and secretory functions of the stomach. The advisability of these procedures, then, must depend on the degree of safety with which they can be carried out. If the operative mortality is sufficiently low, they can be recommended as radically curative. This again depends largely on the condition of the individual case—age, general health and the extent of local disease. Kocher does not entirely agree with the recent tendency toward radical operations, but thinks that gastroenterostomy is of value in well selected cases. He also does not agree with the classification of ulcers into the two groups above mentioned. He thinks any ulcer may develop into the calloused type and may be reabsorbed if not of too long standing. For this reason he advises gastroenterostomy when thoroughly indicated, at a reasonably early period. He states further that the danger of malignant change is not sufficiently great to be of itself an indication for operation even when the diagnosis of ulcer is established. The high per cent of ulcers showing malignant change microscopically (13 to 43 per cent) has probably been exaggerated. Kocher also gives the following statistical facts. Of eighty cases of ulcer definitely felt at operation, only eight were duodenal. The operative mortality in simple gastroenterostomy was 1.25 per cent; in ten cases of resection it was 10 per cent.

As stated above, however, the main difficulty at present in regard to ulcer is in the diagnosis and the main need is precise knowledge, which can only be obtained from the study of demonstrated cases of ulcer.

Graduates of Sectarian Schools in the Government Services:—

The truth, as all who are conversant with the facts are aware, is that few graduates of sectarian schools are able to secure appointments for the same reason that few graduates of low-grade "regular" schools are appointed—namely, that the equipment and character of instruction at these schools are not sufficiently high to prepare the graduates so that they can comply with the standard required by the government service. It is not a matter of "schools" or "sects"; it is a question of a working knowledge of the sciences fundamental to modern medicine.—J. A. M. A., lix, 943.

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EDITORIAL

Crude Drugs and their Active Principles

It is the general tendency of today to replace the drugs found in nature by their active principles. Thus the salts of quinin, strychnin and morphin are replacing more and more the drugs cinchona, nux vomica and opium, with their decoctions, tinctures and extracts.

In opposition to this tendency it is often held that this or that active principle does not represent the full action of the drug from which it is claimed to have been obtained. In some cases this is to be explained by the presence of two or more active constituents in a drug as in the case of cinchona. Here the

action of the tannin contained in the drug may be desired at times. In other instances, no doubt, the active principles, always difficult of isolation, have been obtained in an impure or decomposed state. In certain cases, however, neither of these two explanations will hold. Quite pure morphin is available and, further, the other alkaloids, known to be present in opium, considering their known action and their proportionate amounts, do not appear to explain the known difference in the action of morphin and opium.

As the effects of opium are not a mere summation of the effects of its several constituents, the explanation must lie in the well established fact that there are bodies which may augment the action of other bodies. A compound inert in itself may modify the sensitiveness of the organism to other substances; in other words, it may fortify their efficiency by rendering the individual peculiarly receptive or by other less apparent means.

From a critical review (*Jour. A. M. A.*, Sept. 14, 1912, p. 882) of investigations by W. Straub (*Biochem. Ztschr.*, 1912, *xii*, 419) and H. Caesar (*Biochem. Ztschr.*, 1912, *xiii*, 316) it appears that to the narcotin must be ascribed the modified action of the morphin in opium. Using narcotin, the most abundant companion of morphin, in doses too small to produce typical pharmacologic effects of themselves, Straub found that it modifies and greatly increases the effects of morphin. This was demonstrated for a variety of manifestations peculiar to the action of this drug. While it might have been thought that this finding would lead to the recommendation to return to the use of opium or some one of its preparations the investigators propose, instead, the use of a mixture of morphin and narcotin in equal parts. This for the reason that the normal relation of morphin and narcotin in opium are not such as will give to the morphin the maximum effect, because this relation is variable in opium and still more in the preparations thereof and because the other alkaloids appear to modify the action in a manner which, on account of their variability, cannot be predicted.

While it is a question whether or not the mixture of morphin and narcotin will be found to be desirable, the findings recorded by Straub and Caesar are interesting not only in explaining how one drug may modify the action of another but also because they upset the argument of those who favor the use of natural

drugs and who argue that nature, in its superior wisdom, grows medicinal plants of such a character as is best suited to the needs of man.

Les Teignes

Off in one corner of the old Hospital Saint Louis in Paris there have been made, in the past few years, some of the most important advances in the medical sciences. The buildings have existed in part around three hundred years but the laboratory is modern and the work done emphatically so. Professor Sabouraud commenced working with diseases of the hair in 1892 and has practically revolutionized our knowledge of these conditions. His works on seborrhea, impetigo, pityriasis and alopecia are authoritative, while his latest work, *Les Tiegnes** (The Ringworms) is one of the most scientific contributions to modern medical literature. Using a culture medium devised by himself, Sabouraud has discovered some thirty different organisms causing ringworms, he has made a sane and scientific classification of the cryptogamic diseases based on the cultural characteristics of the parasites and his treatment of ringworm and favus is now used the world over. In 1896, four years after commencing his studies, in discussing the inadequacy of the treatments then in vogue he wrote (p. 770): "the root of the hair is inaccessible to the external antiseptics." This being the seat of the trouble, Sabouraud immediately set to work to find some means of causing a spontaneous falling out of the hair, inasmuch as the hairs were too fragile to epilate mechanically. But it was not until January 4, 1904, that he was able to announce to the Dermatological Society the cure of one hundred cases of ringworm by the use of the X-ray. The X-ray had been used before to cause the epilation of the hair but there was no sure means of measuring the dosage and severe burns were frequent. However, in 1903 Sabouraud and Noire invented their pastilles of the platino-cyanate of barium, so devised that one could measure exactly the dose of rays given to a child, without causing a dermatitis. It is based on the following theory. With the child's head 15 centimeters from the anticathode of a tube and with the pastille 7.5 centimeters from the same, the latter changes its color just at the point when sufficient rays have been given to cause a total

*Sabouraud, R.—*Les Teignes* (Masson et Cie., Paris, 1910.)

epilation, but no burn. The rays do not kill the organisms but in twenty to thirty days there is a falling out of the hair, so that further infection from the roots is impossible and the disease can be effectually treated with various antiseptic remedies. Thanks to the pastilles, in the hands of an expert, X-ray burns are unknown and no other ill effects have been seen, as the full dose can be given at one sitting.

As to the results we may take a few extracts from Sabouraud's own writings. There has been an augmentation of the number of cases cured without hospitalization, a correlative diminution in the number of cases placed in the hospital and a diminution of the time spent therein. It has been found possible to suppress a part of the hospital formerly devoted to ringworm cases and likewise to do away with several suburban hospitals formerly devoted to Parisian cases. Formerly it took two years to cure a case of ringworm, while now it is only three months at the most—and many of the parents that would not nurse their child for so long a time but demanded its entrance into a hospital, now cheerfully care for him at home. Thus Sabouraud was able, January 1, 1904, to give up 150 beds in the l'École Lailler of Saint Louis to the services of medicine and surgery. Nevertheless, due to the present rapidity of cure, 500 patients are turned out well annually, where formerly there were only 110. Where, previously, a cure cost the state 2000 francs (\$400) it now costs but 260 francs (\$52). Moreover, it has been possible to give up the suburban hospitals for Parisian ringworm cases having a total of 350 beds. To sum up: by dispensing with the use of 150 beds at Saint Louis and of 350 beds in the suburbs more than 250,000 francs (\$50,000) of capital was returned to the state, while annually there is a saving of 400,000 francs (\$80,000) through the curing of five times as many patients as heretofore.

At present Sabouraud is working on alopecia areata and we may expect and hope for still greater discoveries in what has been as yet an almost hopeless field.

The Fifteenth International Congress of Hygiene

The recent meetings of this Congress should be of very great value to the country and notably to the representatives of the various public health departments who were there in large num-

bers. This is the first time the Congress has been held in the United States and it is possibly the last time for many of us, as it is held only every three or four years. In spite of the fact, which appeared plainly enough, that the United States is greatly hampered in its advance along the lines of preventive medicine by the political interference common among us, the progress of the last few years was very encouraging. The work of the Public Health Service was well brought out and was seen to be of a type that would challenge comparison with the scientific work of any nation. The War Department, especially in its relation to Panama, the Department of Agriculture and other Federal Departments were also prominent. The exhibit, under the charge of one of the Public Health Service men, while it made no attempt to enter into a hopeless competition with the amazing detail of the recent Dresden exhibition, yet was thorough enough to give a very clear idea of the things which are actually being done in the United States, and the trend of public health. The exhibits were classified in a convenient manner, so that any phase of the subject could be studied without undue effort, and the material was sufficient. There was some duplication, but not to a serious degree. Separate comment may be made on the exhibits along the lines of sexual hygiene. These were perhaps too frank for a mixed association, and it is very questionable whether plaster and wax models of the ravages of syphilis and gonorrhea have the desired effect on the young. At all times that part of the exhibition was crowded with adolescents and even children who were carrying off the literature offered. While it is true that these social diseases have thrived largely on account of the secrecy and mystery which have surrounded them, it seems unwise to go to the other extreme and make them the most public of all the diseases. One of the most interesting things in the way of exhibits was the train of cars representing the health cars of California, Louisiana and Maryland, which have been traveling over their respective States and educating the smaller communities. The exhibits were compact and well chosen, and competent men were in charge to explain them. It is probable that this method will be pursued in many of the States, as the general trend of the papers at the Congress was that the key to the whole hygiene situation in this country is the hygiene of the rural communities.

The difficulty with the sections was the usual one in Washington, namely, the lack of any place in which *all* the sections can be housed. With some at the Pan-American Building, some at the Women's Building and others at the National Museum, it was impossible to hear the papers one desired, the more especially as the weather at the time of the meetings was rainy. With ten sections, even under one roof, the Congress would have reminded one of a multiple ring circus, but in the development of hygiene such a mass of sections is apparently quite unavoidable. The papers were well selected and in many cases the discussions were of great interest. Many of the foreign representatives failed to appear at the last moment, which was much to be regretted, as one of the reasons for attendance on such Congresses is to see and meet the men in whose work one is interested.

The growing appreciation that prevention is essential, and that efficiency in prevention requires the correlation of all available agencies, whether medical, political or sociological, should receive a great stimulus throughout the length and breadth of the country as a result of this Congress. In many ways the tone of our papers was apologetic, and to the American spirit this is not an attractive tone. If the men who were in attendance spread the gospel of progress in preventive medicine as they should, it will not be so long before this tone of apology will vanish from our discussions.

Salvarsan Modified

While salvarsan has been with us little more than a year, its place already is being challenged by a new arrival. Though in this case the new arrival is not claimed to be a great therapeutic advance over the known preparation, but merely a slight modification of it, it nevertheless suggests that salvarsan is not the acme of perfection in arsenic medication, which some enthusiasts have thought it to be.

According to New and Nonofficial Remedies (*Jour. A. M. A.*, Jan. 20, 1912, p. 191) salvarsan is, chemically, 3-diamino-4-dihydroxy-1-arsenobenzene hydrochlorid (the numerals indicating the position of the groups which they precede) and has the chemical composition indicated by the formula $\text{HC1. NH}_2. \text{OH.}^{\circ}\text{H}^{\circ}. \text{As: As. C}_6\text{H}_3. \text{OH. NH}_2. \text{HC1}$. From the formula it

is seen that the arsenic is in the unstable trivalent form and not in the stable pentavalent form in which it exists in sodium cacodylate, atoxyl and arsacetin. The two phenol or hydroxyl groups give the substance a weak acid character, enabling it to form weak salts with strong alkalies, just as phenol forms them with sodium hydroxide. On the other hand, the two anilin or amino groups give it basic properties, and just as anilin and ammonia combine with acids to form salts, this substance also combines with hydrochloric acid to form a chlorid. Since the molecule contains two anilin groups it combines with two molecules of hydrochloric acid. These anilin groups impart however but weak basic properties to the molecule and hence the chlorid when dissolved in water is decomposed with liberation of hydrochloric acid so that the solution is strongly acid. Since such an acid solution cannot be injected it has been administered as a suspension of the free base, obtained by adding an amount of alkali to just neutralize the hydrochloric acid, or else in the form of an alkaline solution obtained by adding sufficient alkali to neutralize the hydrochloric acid and to form the water-soluble phenolate.

According to New and Nonofficial Remedies (*Jour. A. M. A.*, Sept. 14, 1912, p. 879) this new or modified salvarsan called neosalvarsan is stated to be a "mixture of sodium 3-diamino-4-dihydroxy-1-arsenobenzene-methanal-sulphoxylate, $\text{NH}_2 \cdot \text{OH} \cdot \text{C}_6\text{H}_3 \cdot \text{As} : \text{As} \cdot \text{C}_6\text{H}_3 \cdot \text{OH} \cdot \text{NH} (\text{CH}_2\text{O}) \text{OSNa}$, with inert inorganic salts." Three parts of this mixture are stated to contain approximately as much arsenic as two parts of salvarsan.

A comparison of the two chemical formulas shows that the arsenic compound, instead of being combined with hydrochloric acid to form the soluble and strongly acid hydrochlorid, has been combined, instead, with an organic sodium salt, which, according to the description given, renders it soluble in water with the formation of a neutral solution which can be injected directly. Thus under the method of administration it is stated: "For intravenous injections 25 ccm of freshly distilled water should be used for each 0.15 gm of salvarsan."

It is thus seen that the new form of salvarsan differs from that first introduced in that it yields with water a solution that can be directly injected. Unless it is found that this new compound has, after all, properties which are different from those

of salvarsan and if no drawbacks to the use of the preparation become apparent in the light of extended use, this new salvarsan should replace the original form to a very large extent.

Newspapers and Doctors

The discussion of the occurrence of physicians' names in medical articles in the daily press receives a somewhat further addition from the correspondence, published at the request of the Council of the Academy of Medicine, which appears on page 752. We believe these replies bear out the point made in the last issue, that in the majority of instances the newspaper is to blame for what the larger and better portion of the medical profession considers a gratuitous insult, that decent doctors not only do not desire but actually abhor newspaper notoriety. But just how much blame should attach to the newspapers under present conditions is difficult to decide. It must be borne in mind that newspapers thrive upon advertisements and that it has become one of their chief functions to look at everything from the advertising standpoint. It is hard for a newspaper man to understand that ethical physicians do not desire to be advertised. A further complicating factor is the lack of technical knowledge upon the part of reporters and editors, which leads to an improper conception of what kind of medical matter constitutes legitimate news. "The efforts of the daily press to furnish information on medical topics consist of sensationalism, personalities, wonder tales, absurdities" (James Ewing). There is hope that the misdirected energy of the newspapers will be corrected by the example of such newspapers as the *Chicago Tribune* and the *New York Times and Sun*, which refer medical topics to a medical editor, just as all newspapers assign exciting prize fights to the sporting editor for proper description. Perhaps the medical editor will ultimately be successful, not only in preventing the publication of scientific absurdities, but also in bringing his city editor to see that personalities are hurtful and distasteful to physicians. The correspondence published ought leave no doubt as to the attitude of those who have made reply. If there are any members of the Academy who did not make satisfactory reply they should be further investigated, and if found culpable the Academy would be better off without them.

The Constitutionality of the Medical Practice Laws of Ohio

Judge Louis H. Winch, Chief Justice of the Circuit Courts of Ohio, and candidate for Judge of the Supreme Court, upon the separate nonpartisan judicial ballot, delivered an opinion in Akron on Saturday, October 14, 1912, of great interest to the medical profession of the state. Not only did he sustain the constitutionality of the laws regulating the practice of medicine in Ohio, but he laid down some important rules as to the trial of quacks who try to practice without a certificate from the State Medical Board.

It seems that Lyman D. Triplett had been convicted in Summit county of unlawful practice in representing himself to be a magnetic healer, "Class School Graduate of The Weltmer School of Suggestive Therapeutics," and diagnosing a certain case as hardening of the arteries, and administering his treatment therefor for a fee.

One Ora L. Brown had been convicted in the same county of representing himself to be a doctor of chiropractic and diagnosing a case as partial paralysis, and applying chiropractic adjustment for a fee.

Both of these men had made stubborn defense of the cases brought against them by the prosecuting attorney and, being represented by counsel from other states, who are engaged by others in like practice for the defense of such cases throughout the United States, many technical objections were raised. Over forty exceptions were taken to the indictment, few of them to its substance, but many to its phraseology.

After conviction they filed petitions in error in the Circuit Court of Summit County, and in reviewing their cases Judge Winch, announcing the opinion of that court, affirming the convictions, said in substance:

"The offense of which these men were convicted was, practicing medicine and surgery without having first obtained from the State Medical Board certificates entitling them to practice; what they did would not authorize a conviction if they held such certificates.

"Legislation prohibiting anyone from treating a disease for a fee, excepting such persons as have prescribed qualifications, is a valid exercise of the police power of the state, and is constitutional.

"The act regulating the practice of medicine in this state exacts reasonable qualifications and excludes no one possessing them.

"The legislature, in its wisdom, may prescribe a uniform examination, and it may recognize one school without recognizing all, if the recognition be in the exercise of proper classification and for the public welfare, and not with a view to create a monopoly in the schools recognized or a discrimination against other schools.

"The act of 1908 revising and consolidating the laws relating to the appointment, powers and duties of the State Board of Health, the State Board of Medical Registration and Examination, etc., contains nothing new referring to the practice of medicine which has not been settled by the decisions of this state, so that it may be said that the constitutionality of that legislation is not an open question in Ohio."

Judge Winch quoted from all the supreme court decisions on this subject.

The opinion also shows that one accused of violating this law should not be allowed to testify that he did not consider his own acts amounted to practicing medicine or surgery; what he *did* was in evidence before the jury, and it was for the jury, not the accused, to say whether those acts amounted to practicing medicine contrary to law.

For the same reason other witnesses for the defense should not be allowed to testify that the practice of the accused, whatever it was, was not the practice of medicine or surgery.

Testimony of the defendant concerning his course of study and preparation for his profession as healer was also held incompetent, and properly ruled out. No matter what or how long he had studied, he couldn't practice medicine without a certificate.

The charge of the trial judge to the jury on the nature of the offense complained of, was also claimed to be erroneous in one of the cases, but Judge Winch said it correctly stated the law, and commended it for its clearness and brevity. It is for that reason reproduced here:

"I further charge you as a matter of law, that it constitutes practicing medicine or surgery in the state of Ohio to do any or all of the following acts or things, before having obtained a license or certificate from the State Medical Board of Ohio, to-wit:

"(1) To use the words or letters 'Dr.', 'Doctor', 'Professor', 'M. D.', 'M. B.', or any other title in connection with one's name which in any way represents one as engaged in the practice of medicine or surgery in any of its branches.

"(2) To examine or diagnose for a fee or compensation of any kind.

"(3) To prescribe, advise, recommend, administer or dispense for a fee or compensation of any kind, direct or indirect, a drug or medicine, appliance, application, operation or treatment of whatever nature for the cure or relief of a wound, fracture, or bodily injury, infirmity or disease. And if you find beyond a reasonable doubt, as I shall define that term to you, that the defendant on or about the 21st day of August, 1910, or on or about the 22nd day of September, 1910, did any one or all of the matters and things which constitute the practice of medicine, as I have defined it to you, then you should find the defendant guilty."

Judge Winch's decision is of such far-reaching importance to the medical profession, it reviews the legal status of certain forms of alleged medical practice so clearly, that it is published in full on page 748. Judge Winch's decision and his "History of Medical Legislation in Ohio" (page 703) give an authoritative and valuable summary of the laws regulating medical practice in Ohio.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

The Vasodilators: In the August number of the *Monthly Cyclopaedia*, Francis Ashley Faught presents a consideration of vasodilators as a group, emphasizing three important points: 1, The absolute necessity of applying the blood-pressure test as a logical and the only accurate means of acquiring definite information concerning the condition of the circulation, and the indications for its modification and control. 2, The mere finding of an elevated blood-pressure is not necessarily an indication for its reduction. Indeed, the latter should never be attempted unless there is a good and sufficient reason, based on a careful study of the case, for doing so. Long continued high pressure often becomes a necessity to the organism, and if it is interfered with the patient's circulatory equilibrium will be destroyed and disaster result. 3, Drugs by no means constitute the only agency we have for successfully combating hypertension. They are often not indicated when the same results can be better and more permanently accomplished by other means, including diet, hygiene, hydrotherapy, exercise and electrical treatments. The vasodilator group of drugs belongs to that large and indefinite class known as the depressomotors. As to the individual members employed, the effect of amyl nitrite taken as a standard is to increase the frequency of the pulse and rapidly to diminish the blood-pressure. All the mem-

bers of the vasodilator group have essentially the same action on the circulation as amyl nitrite, varying slightly because of particular minor characteristics of the individual drugs. The individual selection of the particular drug to be employed in a given case will depend upon the character of the case, the urgency of immediate action, and the effect desired. Before employing any drug of this group, it should be carefully ascertained that the preparation, particularly if a solution, is strictly fresh, as failure to obtain the desired effect may be due entirely to the use of an inactive specimen. Tablet preparations are known to vary greatly in strength and should be of standard make. This defect can, according to some observers, be avoided by the employment of fresh chocolate preparations. Sodium nitrite in solution rapidly loses its activity and should not be kept for more than one week. All these drugs may be employed hypodermically when desired, but for continued use they should, if possible, be given by the mouth. Miller has pointed out an interesting clinical fact, that not only may wide variation in the effect occur from day to day, but different drugs of the same group, as nitroglycerin and sodium nitrite, may affect the same individual differently. Vasotonin is a combination of yohimbin and urethane. The use of this preparation has been confined chiefly to Germany, and so far American observers have failed to obtain the uniformly favorable results reported abroad. In view of the dissenting evidence the drug can not be recommended, and if used at all its effects should be followed with care. As to diuretin, W. H. Hamburger strongly advocates the use of theobromin in this form and finds it very valuable in hypertension and arteriosclerosis of the abdominal vessels, although the effect on the heart is not constant.

Thiosinamine: G. Frank Lydston, in the July number of the *Therapeutic Gazette*, calls attention to the use of thiosinamine in arteriosclerosis. While admitting that deductions from a limited experience in administration of a drug are unreliable, he believes that the case reported is worthy of record. The patient, a man of seventy years, of excellent heredity and of unimpeachable habits, with no history of syphilis, had a blood-pressure from 180 to 200, the arteries being phenomenally enlarged and hardened. The brachials were as large as an ordinary lead pencil, and so prominent that they could be seen at a considerable distance. The heart showed no evidence of gross disease. The usual routine management of such cases was followed and the patient went along quite comfortably under careful nursing and dietetic supervision, save in one respect, viz., he worried continually about the condition of his arteries. Lydston had had some apparently favorably experience with thiosinamine in other conditions and finally concluded to try the drug on this patient. Beginning with grain $1/5$, t. i. d., in capsule, the dose was gradually increased to grain 1, t. i. d. The course of treatment extended over a period of about four months. The result, or apparent result, was remarkable. The temporal arteries were reduced to a size no larger than the temporals of the average man of seventy. The brachials were reduced so that they could be detected only by the touch, and the radials were proportionately reduced. All of the accessible arteries were perceptibly softer. The high blood-pressure was not altered. The relief to the patient's mind was remarkable. He no longer worried about his arteries, nor did he search for them. The improvement continued for the last six months of his life, and he was wont to say that he wondered why he did not get perfectly well when his arteries were "well." There were no urinary symptoms of any consequence, save the characteristic large quantity of urine of low specific gravity; uremic symptoms finally developed and the patient died in coma.

Catarrhal Jaundice: In the *Medical Council* for September, Samuel E. Earp considers simple catarrhal jaundice and its treatment. He states that much consideration is given the bile-stained

patient, when it is known or even surmised that the cause of this symptom is hypertrophic cirrhosis, tumor or other diseased conditions of the liver, gall bladder, pancreas, stomach or duodenum; others might be mentioned. What about catarrhal jaundice, which is almost independent of these, so far as a causative factor is concerned? It does not seem malapropos to speak of simple catarrhal jaundice, and yet only too frequently it seems to have been considered so simple that he believes too little attention has been given to it. We must recognize that the prognosis should always be made with caution, since, if jaundice is prolonged beyond a reasonable time or if there is hemorrhage or fever, these may be the forecast of a grave condition. It seems quite possible that most acute cases are due to a catarrhal inflammation of the common bile duct; but if the simple catarrhal type is not responsible, then hypertrophic cirrhosis, obstruction or malignancy must be considered. A simple catarrhal jaundice may, if neglected, become grave, and hence prevention is all important. There is hardly a diversity of opinion concerning the method of treatment of the simple form. He agrees concerning calomel, because it would take too much space to express his lack of enthusiasm for it. Dietetic measures are important. Omit fats, but carbohydrates are good. Diminished glandular secretion interdicts meat. There should be just enough and the right kind of food to maintain nutrition. Stimulants do harm. If there are evidences of hemorrhage he uses lactate of calcium, thirty grains a day in divided doses. He relies greatly upon phosphate of sodium and, if too mild, supplements it with sulphates of magnesium and sodium. Hexamethylenamine is of value in seven grain doses three times a day. Dilute hydrochloric acid is a good agent, but the best results have followed the use of nitrohydrochloric acid in this combination:

Tr. nucis vom..... 16 ccm (4 fluid drams)
 nitrohydrochlor. dil. Acidi 30 ccm (7 fluid drams)

Tr. cinchonae comp. q. s. ad....120 ccm (3 fluid ounces, 6 drams)

M. Sig: One teaspoonful in half a tumblerful of water before meals.

Blood-Pressure: In the *Archives of Internal Medicine* for August, Harlow Brooks and John H. Carroll report the results of a clinical study of the effects of sleep and rest on blood-pressure. Numerous physiological researches on both man and the lower animals have shown that there is a marked fall in blood-pressure during sleep. Leonard Hill, although admitting that a fall in pressure took place, did not believe that this drop was any greater during sleep than that which has been demonstrated to occur as a result of simple rest combined with the prone posture. Brush and Fayerweather, however, showed definitely that this was not the case, but that the fall was concurrent with sleep and that it was much greater than the drop which sometimes, but not invariably, takes place simply from rest or on lying down. In attempting to apply these observations clinically Brooks and Carroll endeavored to ascertain whether prolonged sleep causes a proportionate lowering of the pressure. Within an ordinary degree at least this does not appear to be the case, and attempts to secure even a temporarily lower twenty-four hour pressure by prolonging or deepening the sleep were apparently without avail. Furthermore they found that little difference existed in the total twenty-four pressure whether the patient is confined to bed or is allowed to be up and about. A special series of observations (ten instances) were conducted to determine whether the sleep drop might not be artificially increased in order to secure a lower pressure curve in concrete cases of high pressure. They obtained no results in this direction and in cases in which the drop and curve has been previously determined, by the administration of potassium bromid in a dosage of as high as 120 grains the degree or persistence of the fall was not increased. The same lack of result was shown when chloral hydrate in a dosage of 50 grains per night was given; the drop and curve were not materially altered. From these and other clinical observations they feel justified

in the discouraging conclusion that this sleep drop cannot as yet be utilized therapeutically to lower the blood-pressure and that although its effect in high blood-pressure cases is more marked than that of any drug in medicinal doses it cannot be employed therapeutically. It may, however, be said parenthetically that the more they study this question of blood-pressure, the more they become persuaded toward the conclusion that the often frantic efforts to lower high blood-pressure are perhaps as harmful, if successful, as they are usually futile.

Vomiting of Pregnancy: A. V. Lyon, in the *American Journal of Clinical Medicine* for September, calls attention to pernicious vomiting of pregnancy and its treatment by alkalies. This method of treatment was first advanced by S. H. Blodgett, who, quite by chance in examining a patient's urine in a case of persistent vomiting where a kidney lesion was suspected, found reactions showing acetone and diacetic acid, but no sugar. The use of five grain doses of bicarbonate of sodium three times a day was followed by practically complete relief in a few days. In 150 similar cases recovery followed in all but two. Of these, 90 per cent occurred in pregnant women, 3 per cent followed operation and 2 per cent were unclassified. He concluded that the presence in the system of acetone and diacetic acid, as indicated in the urine, is not the cause of pernicious vomiting that can be relieved by the alkaline treatment; neither is the claim made that all cases of pernicious vomiting are due to this form of autointoxication. Nevertheless, this condition covers many cases and the easy demonstration of acetone and diacetic acid is a valuable aid and an indication for the proper treatment. Lyon treated thirty-four cases similar in type to those mentioned, all but three occurring in pregnancy. He gives sodium bicarbonate, from five to fifty grains a day. This may seem impossible when the patient is vomiting every morsel taken into the mouth, and in some cases vomiting when nothing is taken. In very persistent cases, twenty grains of sodium bicarbonate may be dissolved in a glass of water and the patient given a sip occasionally. Part of this will be vomited, but some nevertheless will be retained. Within twenty-four hours the vomiting is lessened, more of the medicine is retained and the patient is convalescent. When dissolved in milk or coffee, it does not act so well; given by rectum it does not act at all. As soon as vomiting ceases the soda should be materially reduced, but should be continued in small amounts for a week longer. The hardest cases to cure seem to be those where persistent vomiting begins at about the second month of pregnancy, while those beginning at the sixth or eighth month are checked very quickly. In some persistent cases he has found veronal in two grain doses every two or three hours to be of great benefit.

Neosalvarsan: Abr. L. Wolbast, in the *Medical Record* for July 27, presents a preliminary report on neosalvarsan. Neosalvarsan is the name given to the newer and better salvarsan the laboratory number of which, 914, indicates the tenacity and fixity of purpose which predominate in the Frankfurt Institute. His conclusions as to neosalvarsan are: 1, The clinical results are at least as striking as those of salvarsan. 2, The reaction after treatment is *nil* or very slight with correct technique. 3, Larger doses are more readily tolerated than with salvarsan. 4, The neutral reaction of the solution in water obviates the use of sodium hydroxide, thus avoiding the possibility of thrombosis. 5, Leakage of neosalvarsan into the tissues seems to be absorbed much more quickly than with salvarsan. 6, Patients feel the inflow of the neosalvarsan solution much more than that of salvarsan, in the form of a sense of burning at the site of the injection. 7, Neosalvarsan has no apparent effect on the eyes, kidneys, heart or lungs. 8, Intravenous injections may be repeated in two or four days. 9, The neutral reaction of neosalvarsan solution lends itself readily to intra-

muscular medication, which is admittedly more efficacious than the intravenous. 10, The suspension in glycerin is made almost painless by adding a few drops of 1 per cent beta eucain or alypin solution. 11, The solution of neosalvarsan in distilled water is very painful.

Typhoid Fever: In the *American Journal of the Medical Sciences* for September, James G. Callison treats of the therapeutic use of vaccines in typhoid fever. Vaccines have an unquestioned value in the prevention of typhoid. The advisability of their therapeutic employment is as yet, however, an open question. That they have a value is borne out by the testimony of nearly everyone who has reported a series of cases of typhoid fever treated with vaccines as well as by Callison's personal experiences. Possibly lack of experience is the most usual cause of failure to resort to their use. He has also heard doubts expressed by some physicians who had treated cases of typhoid fever with vaccines, but who expected them to act as an antitoxin. That the action is different from this is an important point to remember. Vaccines give rise to a slowly initiated, gradual production of antibodies. In using the typhoid vaccines therapeutically success or failure must be judged in the light of the reaction of living tissue to injections of dead typhoid bacilli. In the therapeutic use of vaccines, if there is to be any beneficial effect on the temperature curve it must follow closely the same physiological reaction. In other words, theoretically an interval of from five to eleven days should intervene between the first inoculation and any production of antibodies in response to that injection. Following this there should be a more rapid drop in the temperature curve when protective substances produced by the inoculation are added to those produced by infection present. There will, however, be this difference: the reaction of immunity has already been initiated by the existing infection and the reaction in response to the vaccination will come more quickly than in a normal individual, and the interval between the inoculation and its response will be shortened. The conclusions reached are: 1, Vaccine treatment in typhoid fever will reduce the percentage of deaths and lessen the number of relapses. 2, Complications are less frequent in vaccine treated cases and the original attack seems to be shortened in some cases. 3, To give the best possible results vaccine treatment should be instituted as early as it is possible to make a diagnosis, before the patient is exhausted and complications intervene.

Chorea: Frederick C. Eastman, in the *New York Medical Journal* for August 17, states that when we discuss the etiology of chorea there is one important point to be borne in mind, and that is the marked influence of heredity. Study of the parents will, in most instances, demonstrate why the child is choreic; in other words, that the disease is simply an index of the heritage of an unstable nervous constitution. The medical treatment of chorea, as in all diseases in which the pathology is uncertain, is a variable quantity. Antirheumatic treatment appears to be rational in those cases in which there is a clear rheumatic association and it does do good in the relief of purely rheumatic symptoms, but in Eastman's experience it never seems to have the least effect upon the chorea itself. Arsenic as a remedy is regarded from varying viewpoints by different men. Many believe the high estimate of its value is a mistaken one, and that its worth is simply that of an alterative which should be used in small doses. Others, as Allen, believe the patient should be saturated with the drug, maintaining it will demonstrate its usefulness within the first two weeks if at all. Some such view is held by Williams, who advocates from fifteen to twenty minims as an initial dose, continuing the same for a week or ten days in any patient over ten years of age. Eastman has never had sufficient courage to experiment with this form of treatment, being deterred by a too vivid imagination of possible arsenical neuritis, a disturbed gastrointestinal tract and possible

liver and kidney complications. But Williams asserts it does good in the great majority of cases, that in some it is brilliantly successful, while in a few cases it fails completely. He recommends in connection with the arsenic complete rest in bed, combined with a diet from which fish, flesh and fowl are rigidly excluded. He adds that in his experience ergot, in doses of from twenty minims to a dram, increases the proportion of cures. Several European writers have recently recommended salvarsan, but such radical treatment in a disease usually self limited seems hardly justifiable.

New and Nonofficial Remedies

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Neosalvarsan (Victor Koechl & Co.)

Bismuth Betanaphtholate (Merck & Co.)

Staphylo-Strepto-Bacterin Mixed (H. K. Mulford Co.)

Anti-Plague Bacterin (H. K. Mulford Co.)

Slee's Glycerinated Vaccine Virus (Abbott Alkaloidal Co.)

Detre Differential Diagnostic Test (Cutter Laboratory.)

Tuberculin O. T. (Dilution) Von Pirquet's Reaction (Cutter Laboratory.)

Diphtheria Antitoxin (Cutter Laboratory.)

Neosalvarsan is a mixture of sodium 3-diamino-4-dihydroxy-1-arsenobenzenemethanal-sulphoxylate with inert inorganic salts. The arsenic content of three parts of neosalvarsan is approximately equal to two parts of salvarsan. Neosalvarsan is supplied in sealed tubes containing, respectively, 0.15 gm (2 3-10 grains), 0.3 gm (4 6-10 grains), 0.45 gm (6 9-10 grains), 0.6 gm (9 3-10 grains), 0.75 gm (11 6-10 grains), 0.9 gm (13 9-10 grains). It is readily soluble in water, forming solutions which are neutral to litmus and very unstable. The action and uses are the same as those for salvarsan. The average single dose for man is 0.75 gm (12 grains). It may be administered by intramuscular, or preferably, by intravenous injection. For intravenous injection 25 ccm freshly distilled water for each 0.15 gm is to be used. For intramuscular injection 3 ccm of water should be used for each 0.15 gm neosalvarsan, this yielding an approximately isotonic solution. Victor Koechl & Co., New York (*Jour. A. M. A., Sept. 14, 1912, p. 879*).

Saloquinin, the salicylic ester of quinin, is described in New and Nonofficial Remedies, 1912. The product as sold by Merck & Co., New York has also been admitted to N. N. R. (*Jour. A. M. A., Sept. 14, 1912, p. 879*).

Accepted for N. N. R. Appendix:

Menthol-Iodol is a mixture of iodol 99 parts and menthol 1 part. Kalle & Co., New York (*Jour. A. M. A. Sept. 14, 1912, p. 879*).

The Academy of Medicine of Cleveland

CLINICAL AND PATHOLOGICAL SECTION

The eighty-seventh regular meeting of this section was held Friday, October 11, at the Cleveland Medical Library, H. L. Sanford in the chair.

F. E. Bunts exhibited a large intraligamentary fibromyoma of the uterus. Of interest was the fact that a tumor of such a size could be carried without discomfort. Interesting also was the condition of the bladder, which was attached to the tumor and drawn up out of the pelvis, so that it could not be completely emptied by means of the ordinary glass catheter, causing the fundus of the bladder to present as a fluid filled cyst.

The regular program was a symposium upon the Present-Day Conception of the Pathological Physiology of Goiter in Grave's Disease.

(a), From the Standpoint of the Surgeon, by George W. Crile. The relation of the hyperplastic thyroid of Grave's disease and the nervous system was discussed and the development of the operative technic in this disease was described. By means of certain preoperative measures and of the proper general anesthetic and by the use of local anesthesia the field of operation is blocked, so that the already more or less completely exhausted brain cells are protected from harmful stimuli immediately before, during and just after operation. This procedure has resulted in marked improvement in the operative results. (To be published in full.)

(b), From the Standpoint of the Pathological Physiologist, by David Marine. The marked thyroid hyperplasia present in the majority of cases of Basedow's syndrome was up to a few years ago considered characteristic. Later work has shown that similar changes occur in the lower animals without any of the symptoms of Grave's disease as it occurs in the human being, and that clinical exophthalmic goiter may be associated with thyroid glands of the colloid and atrophic types. The hyperplastic gland is poor in colloid and correspondingly poor in iodine. Experimentally typical hyperplasia can be made to revert to a colloid stage by the administration of iodine. The thyroid is believed to show a definite cycle of changes. Hyperplasia may give way to atrophy or may revert to a colloid condition with a high iodine content, an approach to normal for a gland which has been hyperplastic. The reversion may be succeeded by secondary hyperplasia, which in its turn may atrophy or revert. The hyperplastic thyroid cannot be looked upon as a gland which is secreting a toxic material in excessive amounts, but the hyperplasia must be considered the morphological reaction on the part of the tissue to a physiological deficiency. The feeding of large amounts of thyroid gland from patients with Grave's disease to unoperated patients with the clinical manifestations of the disease produces no increase of those symptoms usually held to be due to hyperthyroidism. Many other organs and tissues show alterations in Grave's disease, the lymphoid apparatus particularly being almost uniformly hyperplastic. (To be published in full.)

(c), From the Standpoint of the Internist, by C. F. Hoover. The medical man must summarize the work of the pathologist and the therapist. Almost everyone who has investigated the subject thoroughly must be convinced that there is no relation between the cellular pathology of the thyroid and the syndrome of Basedow's disease. This, the original view of Virchow, has been amply confirmed by the work of Marine and others. Aside from detectable pathological changes there is the possibility of purely functional alterations. Thus, the term hyperthyroidism was for years used in such a way as to make one believe that it was really understood what hyperthyroidism actually means. Such morphological changes as occur in the gland would seem to favor hypo- rather than hyperthyroidism. It is found that the feeding of hyperplastic glands has no characteristic effect upon a patient with Basedow's syndrome. There being little to support the idea of hyperthyroidism, the term dysthyroidism was introduced; the symptoms are due, not so much to increased thyroid secretion, as to abnormal secretion. Clinically, against the hyperthyroidism doctrine is the association of Basedow's syndrome with the evidences of myxedema—nature reduces the thyroid substance as the surgeon does, but without curing the disease. The question then is whether removal of the gland does cure the disease. Surgical therapy must be either on rational or empirical grounds. There may be no rational grounds for the surgical treatment of Basedow's disease—the speaker does not believe that there are—but this does not speak against operative therapy. The surgical treatment must, therefore, be empirical,

and as an empirical procedure the results following it must be carefully scrutinized for a considerable period after operation.

The fact that a patient with Basedow's syndrome may show marked cellular changes in the cortical ganglion cells is interesting from the standpoint of pathology. But the mere existence of such changes does not prove that they have been produced by the thyroid, and it does not follow that removal of the thyroid is the essential element in the overcoming of the other changes noted. It seems more probable that both ganglion cell and thyroid changes are the result of the same thing, rather than that one is directly dependent upon the other.

Whatever the therapy, it should be rational therapy. The surgeon must prove conclusively that his therapy rests upon rational grounds. Of therapeutic measures rest is undoubtedly of the greatest value, but it is often difficult to determine whether the patient is really receiving rest under the plan followed in any given case. In the few patients which the speaker had been able to follow after operation he had not been convinced that the patients showed any improvement that could not be brought about by proper rest.

J. P. Sawyer, in opening the discussion, believed that the term and conception of hyperthyroidism had stood in the way of a proper understanding of the condition. He had not yet had occasion to have a single case operated. He might be more willing today to permit operation, because of the greater understanding of the physiology of the condition and because of the greater consequent care in operation. The reasons brought forward for operation are not conclusive. The condition is one of nervous susceptibility leading to exhaustion and the physician's treatment should be a study of all the conditions which might have brought on the nervous susceptibility, the nerve waste and loss and the exhaustion, with the application of all such measures as will bring about proper rest and repair the loss and waste.

F. E. Bunts said that in some cases operation was followed by benefit, in others not. Many years ago, before there was any very clear attempt to differentiate between the types of goiter, he had tried iodine injections upon a series of cases, with improvement in practically all. In spite of all controversy and of the findings of the pathologist it would seem that the evidence gotten from all sides indicates that there are cases which are benefitted by operation and which should be operated, just as some cases are undoubtedly cured by simple medical treatment.

B. F. Sager mentioned several cases in which improvement and cure had followed the application of the Finsen light, even in patients who could not take a rest cure.

J. V. Kofron stated that he had found calcium iodide uniformly successful in reducing thyroid enlargement and wondered whether the combination of calcium with iodine might not have some effect not to be obtained by iodine alone.

M. J. Lichty said that, because of the untoward end results which follow operation in some cases, he did not see how operation could be advised in every case. On the other hand, he did not see how the internist could see many cases of Grave's disease and not be driven to surgery in many cases.

N. Rosewater believed that rest is the greatest factor in the treatment, no matter what was the etiological factor which caused the nervous upset.

G. W. Crile said that he considered iodine harmful in Grave's disease. His conception of the low iodine content of the hyperplastic thyroid was that in Grave's disease the iodine is highly active and circulating, the gland being active because of the demands made upon it. He did not believe that the good results of surgical treatment are to be explained simply upon the basis of rest and psychic therapy. The surgeon receives the case as the last resort, after medical treatment has tried everything

and has done all it can, and the beneficial effects following operation would seem to rest upon some factor which had been added to those previously tried.

David Marine stated that he must conclude that the facts now known are not compatible with the hypersecretion doctrine. He agreed that desiccated thyroid in Basedow's disease might have ill effects, but only because improperly used, and the symptom complex following over-feeding of thyroid is not the same as Basedow's syndrome. The same results can be brought about by overdosage with iodine, and in each case the effects are due to the administration of iodine in larger amounts than the hyperactive gland can store. The worst cases of Grave's disease have the lowest iodine content in the thyroid and in no other tissue or organ is there an increase in this substance. This would speak against the idea that the thyroid of Grave's disease is active in the sense that the iodine is in circulation. Regarding operation, he believed that operation had given better results than any other form of treatment. But the interesting point is the evolution of the operative treatment. Years ago the mere removal of the gland was considered sufficient; today the surgeon does much more than remove the gland; he pays great attention to the nervous manifestations and often finds simple ligation enough to do to the gland itself. He agreed that the conservation of nerve loss and waste is the essential in any form of treatment. He had no scruples against operation; he had seen cases in which operation was to be advised, and others in which it was not advisable, chiefly because the patients were in such poor condition, physically and mentally, as to be poor surgical risks.

C. F. Hoover, in closing, considered significant the occurrence of typical Basedow's disease with normal thyroids. The goiter heart raises an interesting question. The mistake is made of considering the association of enlargement of the thyroid and of the heart as Basedow's disease. In the latter condition the systolic pressure may be increased, but the diastolic is never high. This must be borne in mind when the question is one of the differentiation between Basedow's disease and cardiovascular disease associated with enlargement of the thyroid. In the former both ventricles are proportionately increased. He believed that even in cretinism the gland may be as vascular as in exophthalmic goiter; this increased vascularity cannot, therefore, be considered evidence of increased glandular functional activity.

COUNCIL MEETING

A regular meeting of the Council of the Academy of Medicine was held Wednesday, September 25, W. B. Laffer acting as chairman pro tem.

The following applications for active membership were received and ordered published: Norris L. Coy, Moses Garber, C. C. Patton, William Riegelhaupt, Harry L. Rockwood, William J. Thornton. The application of W. C. Martin was referred to the Membership Committee.

A communication from the Ohio Society for the Prevention of Tuberculosis was read. The Secretary was directed to ask to have one hundred copies mailed to the Medical Library for distribution.

A communication from C. E. Ford, Superintendent of Health, enclosing a copy of his suggestions to the Board of Health for establishing full-time, paid, district physicians, was read and referred to the Civic Committee.

Correspondence of the Secretary with the Chief of Police and the Director of Public Safety regarding the traffic ordinance was read and approved. A communication from the Cleveland Automobile Club relative to the use of insignia upon the automobiles of physicians was read. The Secretary was instructed to reply making it clear that the Academy of Medicine has not in the past and does not now ask any special exemptions from complying with traffic ordinances, and that the Council did not believe that special insignia were either wise or necessary.

A communication from the Ohio Anti-Saloon League, asking that the Academy appoint a member to a commission to study the causes of diseases, criminality, poverty, etc., to act in conjunction with members appointed from the Chamber of Commerce and other organizations, was read and referred to the Civic Committee with instructions to investigate.

The reply of A. R. Warner, Assistant Superintendent of the Lakeside Hospital, to an inquiry concerning alleged solicitation of obstetrical cases by nurses was read. The Council requested that the substance of the reply be published in the Journal (see page 752).

Correspondence of the Academy on the occurrence of physician's names in connection with medical articles in the daily press was reviewed. The Council requested that the replies be published in the Journal (see page 752).

The Secretary was directed to have one hundred copies of programs sent to the medical college for distribution to the seniors and juniors.

Book Reviews

The Principles of Human Physiology. By Ernest Henry Starling, M.D., (London), F.R.C.P., F.R.S., Jodrell Professor of Physiology in University College, London. Octavo, 1423 pages, with 564 illustrations, some in color. Cloth, \$5.00, net. Lea & Febiger, Philadelphia and New York, 1912.

The increasing importance of accurate physiological knowledge in the practice of medicine and, therefore, in the training of the medical student is indicated, in part, by the various subdivisions of the parent subject in the medical curriculum and in part by the great increase in the output of text-books. Many of these can, however, scarcely be considered as marking any real advance for they are only too plainly mere compilations of previously existing texts and, like oft-told tales, they are not infrequently to be distinguished from their predecessors by nothing more than a change of wording and a less accurate statement of fact. Of the general texts on physiology published in English during the past decade—and of these, including rewritten editions of older works, there are at least over a dozen—not more than three can be considered as of any account. The present work can undoubtedly be given a place in this group. It is a comprehensive review by a master physiologist of knowledge culled, not from previously existing texts, but from the original sources. It is besides clearly written and appropriately illustrated.

Although it cannot be said that this manual excels above the others of its class, it nevertheless has the advantage over them in having been written on clean sheets instead of being the outcome of frequent revision and amplification of the printed pages of older editions. In the recent editions of the older standard works it has been quite evident that the author has been compelled to strike a compromise between the old and the new; he has been timid to prune the old tree although he has been compelled to graft new branches. This has been conspicuously so in the case of the nervous system and in biochemistry. In Starling's book these portions of physiology, being new productions, are conspicuously successful. The nervous system is treated entirely from the functional standpoint and traditional anatomical details are considered only in so far as they have a direct physiological bearing. Sherrington's work figures largely in this portion of the book and some chapters, such as those on the evolution of the nervous process, are to especially lauded. The chapters on biochemistry are well done although here and there an altogether unnecessary amount of chemical detail has been given, the inclusion of which has been in part responsible for the somewhat unwieldy size of the book.

The chapters on digestion, absorption, etc., do not differ conspicuously from those found in the other standard texts and those on circulation and respiration are here and there somewhat disappointing. This is

particularly so with regard to the order in which the various properties of the circulation are considered; a more logical arrangement would certainly have made these chapters simpler for most readers. There are also some serious omissions in this part of the work; the resuscitation of the heart (and of the nervous system), the control of the blood supply to the brain, the influence of gravity on the blood pressure, are either not discussed at all or only in the most superficial fashion. The chapters on respiration are probably too advanced in manner of treatment for the majority of students, but they are admirable reviews of the recent work in this important field.

The treatment of the subjects of metabolism and reproduction is pretty much along the usual lines. Nerve muscle physiology is judiciously curtailed.

For more advanced students and for those who wish to have an up-to-date presentation of modern physiology the book is to be unreservedly recommended, but as a general text for the average medical student, either in the States or in Great Britain, it is probably somewhat too advanced.

The printing and general get-up of the book reflect great credit on the publishers and the American agents are to be complimented on being able to offer the book for no more than it costs in Britain.

J. J. R. M.

A Treatise on Diseases of the Hair. By George Thomas Jackson, M. D., Professor of Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, and Charles Wood McMurtry, M. D., Instructor in Dermatology in the College of Physicians and Surgeons, Medical Department of Columbia University, New York. Octavo, 366 pages, with 109 engravings and 10 colored plates. Cloth \$3.75 net. Lea & Febiger, Philadelphia and New York, 1912.

As the authors state, the average physician feels himself all at sea when he is confronted with a disease of the hair or scalp and this little book supplies what is really a great need in the English language. The authors have drawn freely from the remarkable productions of Sabouraud and Darier and they have treated, briefly it is true yet sufficiently in detail for the general practitioner, the essential affections of the scalp and hair. The first few pages are devoted to the anatomy, physiology and hygiene of these organs and one is glad to see their suggestions in regard to the control of barbers and especially their comments in connection with that antiquated custom of singeing the hair.

The essential diseases of the hair are dwelt on at some length, especially alopecia prematura and alopecia areata. In regard to the latter, it is to be regretted that they have not laid more stress on the symmetrical character of the lesions and on that type characterized by Professor Sabouraud as infectious and noteworthy from a slight fever, general malaise, etc., along with the very sudden loss of hair. Moreover, it is doubtful whether Professor Sabouraud attributes any connection to syphilis in alopecia areata. However, in such a small volume such questions cannot be treated at length.

Following these affections the inflammatory diseases of the hair follicle are taken up and then the parasitic diseases. The latter are taken almost entirely from Sabouraud's work *Les Teignes* and will be of great value to the reader not able to study these diseases in the original work; or to the reader unwilling to spend the time on a larger volume. The illustrations for this section are also from his work.

The last part of the book is devoted to the diseases of the hair secondary to diseases of the skin. Taken all in all the volume is very well written and the illustrations as a rule are good, though four colored plates from Rainforth's *Stereoscopic Clinic* are miserable. The book is to be recommended both to the practitioner and the specialist.

H. N. C.

Elementary Bacteriology and Protozoology: the Microbiological Causes of the Infectious Diseases. By Herbert Fox, M.D., Director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania. 12mo, 237 pages, with 67 engravings and 5 colored plates. Cloth \$1.75 net. Lea & Febiger, Philadelphia and New York, 1912.

The preface says that "the present work has been prepared to give the nurse and the beginner an idea as to the nature of microorganisms and their relation to the world's economy, especially in disease." Surely a difficult task—because a discussion of bacteria and protozoa and of their relations to disease cannot be couched in words of one syllable in such a way as to retain any of the essence of a difficult subject—but a task in which the author has succeeded unusually well. The language is as simple as possible and direct, confusing controversial details are omitted, and technical terms are defined in the running text in such a way as to help rather than mar the train of thought. A six page glossary defines the more frequently used technical terms. The production of disease by microorganisms and the reactions of the body to infection are sufficiently considered, and under the individual species of organisms enough is given of morphology and of the relation to specific diseases to maintain interest. The book will give to the nurse comprehensible information upon a subject important in her work, and it can be recommended by the physician to the layman interested enough to desire more accurate knowledge than he can gain from the newspapers. O. T. S.

Essays on Genitourinary Subjects. By J. Bayard Clark, M.D., Assistant Genitourinary Surgeon to Bellevue Hospital, Consulting Genitourinary Surgeon to the Elizabeth General Hospital, etc., New York. Cloth, 174 pages, \$1.25 net. William Wood & Company, New York, 1912.

These Essays represent a collection of papers, some of which have previously appeared in medical journals, and some of which are new. The early ones have been revised to conform to the newest ideas on the subjects treated. The author has a very happy way of putting things and his view point is original. The book is in no way a text-book, but will prove pleasant reading for those interested in this work.

H. L. S.

Neurasthenia Sexualis, A Treatise on Sexual Impotence in Men and in Women. By Bernard S. Talmey, M.D., Former Pathologist to the Mothers' and Babies' Hospital, Gynecologist to the Yorkville Hospital, New York. Cloth, 196 pages with 19 figures, \$2.00. The Practitioners' Publishing Co., New York, 1912.

This little volume is extremely well written and contains in a concise form much information which will appeal to students of medicine and also to the general practitioner. The book does not claim any originality and will undoubtedly serve the purpose for which it is intended. All physicians will find in its pages many helpful suggestions relative to this most common disorder.

H. H. D.

Acknowledgements

Brain and Spinal Cord. A Manual for the Study of the Morphology and Fibre-Tracts of the Central Nervous System. By Dr. Med. Emil Villiger, Privatdozent in Neurology and Neuropathology in the University of Basel. Translated by George A. Piersol, M.D., Sc.D., Professor of Anatomy in the University of Pennsylvania. J. B. Lippincott Company, Philadelphia and London, 1912.

A Doctor's Table Talk. By James Gregory Mumford, M.D., Lecturer on Surgery in Harvard University, etc. Houghton Mifflin Company, Boston and New York, 1912.

The Blood of the Fathers. A Play in Four Acts. By G. Frank Lydston. The Riverton Press, Chicago, 1912.

Making Good on Private Duty. Practical Hints to Graduate Nurses. By Harriet Camp Lounsberry, R. N., President West Virginia State Nurses' Association, Sanitary School Inspector for Charleston Independent School District. J. B. Lippincott Company, Philadelphia and London, 1912.

Muscle Spasm and Degeneration in Intrathoracic Inflammations and Light Touch Palpation. By Francis Marion Pottenger, A.M., M.D., LL.D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. C. V. Mosby Company, St. Louis, 1912.

The Post-Mortem Diagnosis of Plague. By Rupert Blue, Surgeon General, United States Public Health Service. Reprint from Public Health Reports, No. 90.

Active and Passive Immunization against Plague. By Wade H. Frost, Passed Assistant Surgeon, United States Public Health Service. Reprint from Public Health Reports, No. 92.

A Survey of the Tuberculosis Situation in the State of Ohio. Prepared for the Ohio Society for the Prevention of Tuberculosis. Published by the Ohio State Board of Health, 1912.

The University of Colorado Medical Bulletin. Vol. VII, No. 1, June, 1912. Reprints:

Human Life as a National Asset. By E. E. Rittenhouse, Conservation Commissioner of the Equitable Life Assurance Society.

The Composite Physician. By James C. Wood, A.M., M.D., Professor of Surgical Gynecology, Cleveland Pulte Medical College, Cleveland.

The Social Evil: The duty of the physician, by James C. Wood, A.M., M.D., Cleveland.

Adult Flat-Foot. By Walter G. Stern, M.D., Orthopedic Surgeon to the Mount Sinai Hospital, Cleveland.

Statement of the Ownership, Management, Circulation, Etc.,

of The Cleveland Medical Journal published monthly at Cleveland, Ohio, required by the Act of August 24, 1912.

In accordance with the provisions of Section 467½ of the Postal Laws and Regulations the following statement is published:

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(Signed) Ruth F. Stone, Business Manager.

Sworn to and subscribed before me this second day of October, 1912.
(Seal)

G. P. Koelliker,

Notary Public.

(My commission expires March 17, 1915.)

Decision Upholding the Medical Practice Laws of Ohio

IN THE CIRCUIT COURT, EIGHTH CIRCUIT

State of Ohio, Summit County, ss.

September Term, 1912

Lyman D. Triplett,
Plaintiff in Error

vs.

The State of Ohio,
Defendant in Error.
No. 1023.

Opinion

Rendered Oct. 12, 1912.

Ora L. Brown,
Plaintiff in Error,

vs.

The State of Ohio,
Defendant in Error.
No. 1034

Opinion

Rendered Oct. 12, 1912.

Error to the Court of Common Pleas.

Marvin, Winch and Niman, JJ.

Winch, J.

These two cases are considered together because they both involve convictions for violating the statutes regulating the practice of medicine and have many propositions in common. The constitutionality of the law under which the accused were convicted is attacked in both cases.

Neither of the accused held a certificate obtained from the State Medical Board in the manner required by law.

Lyman D. Triplett was tried by the probate court of Summit County upon an affidavit filed with it specifying that he had used the title "Prof." in connection with his name upon cards on which he advertised that he was a "Class School Graduate of The Weltmer School of Suggestive Therapeutics, (Magnetic Healing)". "Every known Disease Cured Without Medicine or Surgery. Office Treatment. Home Treatment. Absent Treatment. Thousands Cured Via This *Drugless* Route"; that he, for a fee, examined and diagnosed a certain bodily infirmity or disease of one Louise Zimmerly as hardening of the arteries and, for a fee, prescribed, advised, recommended and administered a certain application, agency, operation and treatment, to affiant unknown, for the relief of said bodily infirmity or disease.

Ora L. Brown was tried by the common pleas court of Summit County upon an indictment specifying that he had used the letters "D.

C.", being an abbreviation of and meaning, Doctor of Chiropractic, in connection with his name, thereby representing that he was engaged in the practice of medicine and surgery for the cure, relief and treatment of bodily infirmities and diseases; that he, for a fee, examined and diagnosed a certain bodily infirmity or disease of one Jacob A. Kepler, as partial paralysis and, for a fee, prescribed, advised, recommended and administered a certain application, agency, operation and treatment, the name of which is chiropractic adjustment, and the nature of which is a manipulation or pretended adjustment of the vertebrae of the spinal cord, for the relief of said bodily infirmity or disease.

The sections of the General Code upon which the prosecutions in these cases were based are 1286, 1287 and 12694.

These sections are derived from the act of May 9, 1908, 99 O. L., 492, revising and consolidating the laws relating to the appointment, powers and duties of the State Board of Health, the State Board of Medical Registration and Examination, etc. Said act contains former acts regulating the practice of medicine, and amendments thereof, which have been passed upon by the supreme court of this state, their constitutionality being upheld.

There is nothing new in the sections of the General Code referring to the practice of medicine which has not been settled by the decisions of this state, so that it may be said that their constitutionality is no longer an open question.

The following quotations from the leading Ohio cases on the subject make that point plain:

"The giving of Christian Science treatment for a fee for the cure of disease is practicing medicine within the meaning of the statutes regulating such practice in this state.

"The statute making it a misdemeanor to give such treatment for a fee is not an interference with the rights of conscience and of worship conserved by section seven of the bill of rights, and is not on that ground unconstitutional.

"Legislation prohibiting any one from treating a disease for a fee excepting such persons as have prescribed qualifications, is a valid exercise of the police power of the state and *is constitutional*.

"The act regulating the practice of medicine in this state exacts reasonable qualifications and excludes no one possessing them and *it is not void as distinguishing against Christian Scientists* in that it prescribes that any one possessing certain qualifications may practice osteopathy, *and does not make special provision for those who wish to practice Christian Science.*" (*State of Ohio v. Marbel*, 72 O. S., page 21.)

"That the practice of medicine may be regulated by legislation has been decided in every court in which the question has arisen. In the leading case, *Dent v. W. Va.*, 129 U. S., 114-122, Mr. Justice Fields says: The power of the state to provide for the general welfare of its people authorizes it to prescribe all such regulations as in its judgment, will secure, or tend to secure them against the consequences of ignorance and incapacity, as well as of deception and fraud. As one means to this end it has been the practice of different states, from time immemorial, to exact in many pursuits a certain degree of skill and learning, etc., etc." (*State of Ohio v. Marbel*, 72 O. S., page 34)

"That the legislature, in its wisdom, might prescribe a uniform examination, we do not doubt, and that it may recognize one school without recognizing all, is also true, if the recognition be in the exercise of proper classification and for the public welfare, and not with a view to create a monopoly in the schools recognized or a discrimination against other schools. *Parks vs. State*, 159 Ind., 211; *State ex rel. Kellog v. Kearns*, et al., 111 Wis., 431; *Scholls v. State*, 90 Md., 729." (*State of Ohio v. Marbel*, 72 O. S., page 34).

"The power conferred upon the state Board of Medical Registration and Examination * * * is administrative in character, and not judicial within the meaning of section one of article four of the constitution of the state."

"It is competent for the state, under its power to provide for the welfare of its people, to establish needful regulations and impose reasonable conditions calculated to insure proper qualifications both with respect to learning and moral integrity, of persons desiring to engage in the practice of medicine in the state, and require compliance therewith by such persons before they shall be permitted to practice within the state. The regulations adopted by this statute are of that character, and do not infringe upon the privileges and immunities guaranteed by section two, of article four, of the Federal constitution to citizens in the several states, *nor abridge those secured to citizens of the United States by the fourteenth article of amendment, of that constitution.*" (*France v. State*, 57 O. S., page 2.)

"The objection that the law violates article two, section two, of the constitution of the United States, which provides that 'The citizens of each state shall be entitled to all the privileges and immunities of citizens of the several states,' by preventing nonresidents of Ohio from obtaining and filing for record a certificate entitling them to practice medicine in Ohio, cannot be raised by the defendant for the reason that he is a citizen of Ohio and therefore is nowise prejudiced by whatever provision the act may have with respect to nonresidents." (*State v. Mosier*, 78 Ia., 321.)

"The right to labor and enjoy the rewards thereof is a natural right which may not be unreasonably interfered with by legislation. Where, however, the pursuit concerns in a direct manner, the public health and welfare and is of such a character as to require a special course of study or training, or experience, to qualify one to pursue such occupation with safety to the public interests, it is within the competency of the General Assembly to enact reasonable regulations to protect the public against evils which may result from incapacity and ignorance." (*State v. Gardner*, 58 O. S., 599.)

In the opinion of the Gardner case, the court says:

"The acts referred to fall within the exercise of the police power of the state, that power, conceded to reside in the people's representatives, which is rightfully exercised by the regulation of the use of private property, or so restraining personal action, as to secure, or tend to the comfort, health or protection of the community. *Further examples of its exercises are found in the laws which require study and examination before one is permitted to practice law or medicine, or engage in the occupation of a dentist or a pharmacist.*" (*State v. Gardner*, 58 O. S., 606.)

In the above case it was held, that the business of plumbing, while not to be ranked with the professions as to degree of learning, is one which is so nearly related to the public health that it may with propriety be regulated by law and reasonable regulations tending to protect the public against the dangers of careless and inefficient work, and appropriate to that end do not infringe any constitutional right of the citizen pursuing such calling.

In the case of *State of Ohio v. Liffing*, it was held:

"The system of rubbing and kneading the body, commonly known as osteopathy, is not an 'agency' within the meaning of the act of February 27th, 1896, 'to regulate the practice of medicine', (92 O. L., 44), which forbids the prescribing of any 'drug or medicine or other agency' for the treatment of disease by a person who has not obtained from the board of Medical Registration and Examination a certificate of qualifications." (*State v. Liffing*, 61 O. S., 39.)

In the case of *State v. Cravett*, it was held that:

"The system of rubbing or kneading the body, commonly known as osteopathy, is *comprehended* within the practice of medicine defined by section 4403-f, of the Revised Statutes, as amended by the act of April 14th, 1900 (94 O. L., 200). (*State v. Cravett*, 65 O. S., 289.)

In distinguishing the two cases, the court said, that in the *Liffring* case, as the statute then stood, by applying the doctrine *noscitur a sociis*, the application of which doctrine was called for by the statute as it then stood, that the rubbing or kneading process, commonly called osteopathy, was not included within the terms of the statute, while in the *Gravett* case the amendment to the statute, which had been made since the former case, made the act so comprehensive that the above doctrine could be of no aid in construing the statute, and that the process of kneading and rubbing the body, commonly called osteopathy, was included within the statute as amended. The court in the *Gravett* case, however, found the act of April 14, 1900 (94 O. L., page 200) to be defective in that it discriminated against osteopaths by requiring them to hold diplomas from a college which requires four years of study. At the next session of the legislature the act was again amended, (95 O. L., 212), so as to rid the statute of this vice by eliminating the four years requirement for osteopaths.

About forty objections to the form of the affidavit in one case and the indictment in the other case were presented in the lower courts and overruled. They have been presented for review here, but we find that in both cases the accused were informed of the charges against them with that definiteness and certainty that the law requires.

In the *Brown* case it is further contended that the court erred in refusing to permit him to testify that he did not practice medicine on the day in question.

There was no error in this. The question simply called for *Brown's* conclusions as to what he did and his own characterization of his own acts. His acts were before the jury, and it was for the jury to determine whether those acts amounted to practicing medicine contrary to law.

In the *Triplett* case certain rulings on evidence are complained of.

The trial judge refused to allow the introduction of any evidence to show what The Weltmer School of Suggestive Therapeutics was, and likewise what magnetic healing consisted of, for the purpose, as claimed, of showing that the advertising matter set up in the information could not reasonably have represented plaintiff in error to be engaged in the practice of medicine or surgery.

The trial judge also refused to permit the accused to show by other witnesses than himself that his practice, whatever it was, was not the practice of medicine or surgery.

This is practically the same point that was made in the *Brown* case, and nothing further need be said about it. It was not for the witness, but for the jury, to determine the character of his practice.

Both of these questions, however, have been adjudicated by the supreme court.

From the record of the unreported case of *State v. Hughes*, 83 O. S., 445, it appears that the prosecuting attorney excepted to the admission of evidence on behalf of the defendant in the following particulars:

"Fifth. Testimony of the defendant concerning his course of study and preparation for his profession as healer."

"Sixth. Testimony of the defendant as to the nature of his treatments. That the same did not consist of administering drugs or performing surgical operations."

The judgment of the supreme court is:

"Exceptions sustained."

This is sufficient to show that the supreme court considered that the trial judge in the Hughes case erred in admitting evidence that was ruled out in both the Brown and Triplett cases.

The objection to the reading of the coroner's minutes of what Triplett said at the inquest is not well taken. The record shows that counsel for the accused consented to the reading thereof.

The charge of the court in the Triplett case is brought to our attention. The complaint is that it divided the offense charged in the information in such a manner as to lead the jury to believe that the violation of the statute could be committed in any one of three ways. On this subject the charge is as follows:

"I further charge you as a matter of law, that it constitutes practicing medicine or surgery in the state of Ohio to do any or all of the following acts or things, before having obtained a license or certificate from the State Medical Board of Ohio, to-wit:

(1) To use the words or letters, "Dr.", "Doctor", "Professor", "M. D.", "M. B.", or any other title in connection with one's name which in any way represents one as engaged in the practice of medicine or surgery in any of its branches.

(2) To examine or diagnose for a fee or compensation of any kind.

(3) To prescribe, advise, recommend, administer or dispense for a fee or compensation of any kind direct or indirect a drug or medicine, appliance, application, operation or treatment of whatever nature for the cure or relief of a wound, fracture, or bodily injury, infirmity or disease. And if you find beyond a reasonable doubt, as I shall define that term to you, that the defendant on or about the 21st day of August, 1910, or on or about the 22nd day of September, 1910, did any one or all of the matters and things which constitute the practice of medicine, as I have defined it to you, then you should find the defendant guilty."

This charge was correct.

A statute often makes punishable the doing of one thing, or another, sometimes specifying a considerable number of things. Then by proper and ordinary construction a person who, in one transaction does all, violates the statute but once, and incurs only one penalty. Yet he violates it equally by doing one of the things. Therefore, an indictment on such a statute may allege, in a single count, that the defendant did as many of the forbidden things as the pleader chooses, employing the conjunction "and" where the statute has "or", and it will not be double, and it will be established at the trial by proof of any one of them. (*Bishop's New Criminal Procedure, Vol. 1, Sec. 436.*)

We find no error in the record of these judgments, and they are affirmed.

Messrs. W. J. Laub and L. D. Slusser, Counsel for Plaintiff in Error.

Mr. F. J. Rockwell, Prosecuting Attorney, Counsel for Defendant in Error.

Mr. H. M. Hagelberger, Counsel for Plaintiff in Error.

Mr. F. J. Rockwell, Prosecuting Attorney, Counsel for Defendant in Error.

Correspondence

Much of the correspondence which is acted upon by the Council of the Academy of Medicine is of such a nature as to belong properly to the members of the Academy. Because it cannot well be incorporated in the Secretary's minutes and read at the meetings of the Academy and because it should be one of the functions of THE CLEVELAND MEDICAL JOURNAL, as the official organ of the Academy, to serve the members of the organization, the following correspondence is published in accordance with the request made by the Council at its meeting of September 25. The first communication, with comment by the Secretary, relates to a complaint made to A. P. Hammond of the State Medical

Board; the remaining letters are replies received in answer to a communication sent by the Secretary to members of the Academy whose names have appeared in articles in the daily press.

A complaint was received from Dr. Todd against Lakeside Hospital visiting nurses and was referred to the Council of the Academy by Dr. A. P. Hammond, to whom Dr. Todd complained. A portion of Dr. Hammond's letter stating the complaint and the reply of Dr. Warner to whom the matter was referred by the Council, and who caused it to be investigated, is given herewith. A comparison of the complaint and the reply shows how unfounded the complaint is.

"Dr. Todd says and contends that the Lakeside Hospital visiting nurses are solicitating obstetrical cases from his private practice to his detriment, and names two specific cases, a Mrs. Jos. Schrabasa, 2449 W. 5th, and a Mrs. Mary Schuminsky, 2444 W. 5th." (Letter of Dr. Hammond to Council of the Academy.)

Dr. Warner's reply, dated September 12, is in part as follows:

"I easily determined from our records that we never delivered a maternity case at the addresses given. For your information I will state that at 2449 W. 5th St. there resides only one family, by name Mike and Josie Naratoski, who have lived there for the past seven years. Mrs. Naratoski was never delivered by a doctor; she always employed midwives and her last confinement was three years ago. At 2444 W. 5th St. we found that the house was owned and occupied by a Mrs. Minnie Langoski for nine years until about one month ago when she sold the property to Mrs. Mary Meckner. Mrs. Langoski occupied the entire house. She always employed midwives at her confinement and her last confinement was six years ago. Mrs. May was the midwife. Mrs. Meckner, who now occupies the house has no young children and always employed midwives. The second floor at 2444 W. 5th was recently rented to a second tenant for the first time in nine years. This tenant is Mrs. May Barkoliski. She had one child about a year ago delivered by a midwife, who resides on the corner of Fairfield and West 10th. It is therefore certain that no such persons as described by Dr. Todd have lived at either address for the past seven or nine years. * * * At any time there is any complaint against any department of Lakeside Hospital, social or medical work, I shall be very glad to hear from you and to make investigation.

Very truly yours,

A. R. Warner, M. D.,
Assistant Superintendent.
July 30, 1912.

Dear Dr. Tuckerman:

In reply to your note of inquiry as to whether my name appeared in the daily papers with my approval will answer that it appeared there with my knowledge but without my consent.

Sincerely yours,
Harry G. Sloan.
July 31, 1912.

Dear Doctor:

In reply to your letter of the 29th inst. regarding the publication of my name in the *Press*, July 29th, I have the honor to state that the publication was distinctly without my consent and in the face of repeated denials on my part of information desired by the reporters of that sheet.

Very truly yours,

G. Bourne Farnsworth.

August 2, 1912.

To the Academy of Medicine:

Gentlemen—I wish it to be known that I am opposed to physicians or surgeons publishing any statement concerning an operation. I also wish to state, I had no knowledge of my name being used July 24th, and if quoted it was without my consent.

Very respectfully,

W. R. Boyd.

August 5, 1912.

Dr. J. E. Tuckerman, Secretary, City:

Dear Doctor—Yours of this date gives me the first knowledge of the article you speak of. Neither do I know source of same, unless from patient whom I have not seen for several days. Consent was not asked nor granted.

Yours,
J. C. Fritch.

August 5, 1912.

Dear Doctor:

In reply to the above will say that my *name* and the *article* appeared in the paper without my knowledge or consent. The article was nearly all lies. I do not have to advertise.

Yours truly,
R. H. Sunkle, M. D.

August 13, 1912.

Dr. J. E. Tuckerman, Osborn Bldg., City:

Dear Doctor—In answer to your letter of the 13th concerning my name appearing in the *Leader* and *Press* of August 7th, 1912, I wish to state that it appeared in these papers without my knowledge and consent. Since its appearance I have learned that Mr. Moore, Superintendent of the Central General Hospital, where the operation was performed, was formerly a newspaper man and he is responsible for that newspaper article.

Trusting that this will be of some assistance to you, I remain,
Very truly yours,
W. H. Rieger.

August 13, 1912.

My Dear Doctor:

In reply to your communication of August 13th will say that the article was a total surprise to me, as I had no knowledge of its appearance until I read the morning paper.

Yours truly,
John Neuberger.

August 30, 1912.

Dear Doctor:

Regarding your favor of the 30th inst., I know nothing regarding the article in the *Leader*. Possibly was furnished paper by police department. I was sent to patient by policeman who forced parents to call a physician, through information furnished him by district nurse.

May I say in conclusion that I do not favor publicity for the physician.
Respectfully Yours,
L. A. Wheelock.

August 30, 1912.

My Dear Dr. Tuckerman:

A representative of the *News* asked me some questions and also asked for a photograph, both of which were refused and both of which I knew no reason for.

Very truly,
Dr. T. A. Burke.

August 30, 1912.

My Dear Doctor:

I knew nothing of the article in the Journal.

Very truly,
Dr. F. J. Schmoldt,
Per H. M.

August 31, 1912.

Dear Doctor :

Your letter of 30th received yesterday. Reporters for both a. m. and p. m. dailies called up regarding poisoning cases on South Side. They did not ask for permission to publish my name nor did I give same.

Respectfully,
J. E. Maska.

August 31, 1912.

Dear Doctor :

Replying to yours of the 29th inst. will say that my name appeared in the *Leader* and *News* without my knowledge.

Very respectfully yours,
I. M. Rubin, M. D.

September 3, 1912.

Dear Doctor :

Replying to your letter of August 30th, I was not aware that my name appeared in any newspaper article as I have not been interviewed by a reporter of the *Press* or any other paper. However, if my name did appear, it was without my knowledge or consent.

Very truly yours,
A. F. House.

Dear Doctor :

In reference to your letter of recent date about my name appearing in the *Press*, will state that it was put in without my knowledge. The police gave the paper my name; I am one of the hearty believers that a doctor's name should not appear in print in the daily papers and have notified them all long ago not to print my name.

Yours very truly,
L. H. Wagner.
September 18, 1912.

Dear Doctor :

Your communication of September 16, 1912, at hand. In reply I wish to state that the articles referred to in both the *Leader* and *Plain Dealer* of September 1st and 2nd were not published with my knowledge and consent.

The newspaper notoriety given to all acts of a public official is deplorable but one is without recourse.

Respectfully,
Robt. C. Droege.
September 17, 1912.

Dear Doctor :

Referring to your inquiry in regard to my name being mentioned in the *Plain Dealer* September 11th, I wish to state that until the receipt this morning of your favor I was not aware that my name was mentioned in the said newspaper. As I have not the *Plain Dealer* referred to will you please advise me of the data in connection of which my name appeared.

Very respectfully yours,
I. M. Rubin, M. D.

September 16, 1912.

Dear Doctor Tuckerman :

Concerning the articles mentioned by you as appearing in the *News* under the date of August 30, 1912, also in the *Press* September 3, 1912, will say that it was *not* with my consent, that I had no knowledge of and have not seen the articles referred to. I am only too glad to have you refer such matters to me and to assist in any possible way the suppression of my name in the public press.

Gratefully yours,
Adams B. Howard.

September 17, 1912.

Dear Doctor:

I have your letter of the 16th instant relative to the occurrence of my name in two of the daily papers in connection with the Lake Shore accident of the 8th instant.

My name was used in connection with this incident entirely without my cognizance or approval. In the future as has been done in the past, I will discourage any notoriety of the sort, which is distasteful to me. In explanation of the occurrence I will state that the information relating to this incident was obtained in all probability from the patients themselves, to whom no doubt the reporters had access.

Very truly yours,
C. W. Wille, M. D.

August 28, 1912.

Dear Doctor Tuckerman:

Your communication under date of July 29th came duly to hand and should have received attention sooner but for my absence from the city.

Replying, will say that the day previous to my leaving town a reporter called to ascertain the statistics as I knew them during my administration at the State Hospital concerning suicides and the proportion of males and females. I told her that I did not wish to be quoted, that my memory was not clear as to the proportionate number and that the population at the Hospital had changed so in character since my acquaintance with it that a comparative estimate could not be reached, etc. I again asked her not to use my name.

Leaving town the next day on my vacation, knew nothing of the article mentioned by you and have not as yet seen it.

Very respectfully yours,
Adams B. Howard.

August 30, 1912.

Dear Dr. Tuckerman:

Replying to yours under even date will say that I know absolutely nothing concerning the articles referred to in the *Leader* of August 23rd or *News* of August 26th, and have seen neither of them as I confine my newspaper reading to the *Plain Dealer*.

You may not know that my work in the courts keeps me constantly dodging reporters and I have asked them repeatedly *not* to mention my name in any article they may publish concerning my work there. It is very annoying to me and does me harm in my private practice. There is absolutely no reason why the physician's name should be mentioned and I shall consider it a personal favor if you can prevent it.

Very respectfully yours,
Adams B. Howard.

August 30, 1912.

Dear Doctor:

I am grateful for your communication, just received. In regard to the articles that have recently appeared in local papers, involving me, I have only to say that they were published entirely without my knowledge or consent. The story that appeared in the *Plain Dealer* of the 26th inst., particularly incensed me and I took the trouble to trace its source. They politely informed me that it was copied from the *Cleveland Medical Journal*.

I at once wrote Dr. Schultz, the Editor, suggesting that inasmuch as copies of our medical journal apparently reach the newspapers, some form of censorship should be arranged for. The story in the *Plain Dealer* was in no wise suited for the lay press and furthermore its incoherent presentation was perfectly ridiculous.

I have very pronounced ideas in regard to newspaper notoriety. It is not only mortifying to me but I consider it positively harmful. No good can possibly come from such means. It is also unjust to the profession.

If you will go to the bottom of these cases and apply preventive measures, I will heartily thank you.

In public court matters, I have at times found it troublesome to prevent the mentioning of my name. Some of the editors to whom I have appealed have granted the request, but reporters are frequently changed and have little thought of the harm they inflict in writing us up. So far as I am concerned you can count on me to assist in any plan to prevent reference to physicians in the newspapers. To those who desire to indulge in unethical advertising you may deal with as it seems best.

Yours very truly,
H. H. Drysdale.

September 13, 1912.

Dear Doctor:

I did not know that my name was mentioned in the *News* September 13th and 14th. Of course, this was published without my knowledge.

Sincerely yours,
G. W. Crile.

In answer to an inquiry August 13, 1912, Dr. Crile enclosed the following letter addressed to the Editor of the *Cleveland Leader*.

August 13, 1912.

Sir:

In today's issue of your esteemed paper there appeared an article entitled "Shock from Knife Ended by Surgeon."

I write to point out a personal injustice in the matter of its publication. According to your reporter, to whom I gave no interview, your source of information was the *New York World*, and yet there appeared an article containing the substance almost verbatim of an article published in the *World*, and signed by Leonard Keene Hirschberg, M. D., but with no acknowledgement of the source. This presented me and my associates in the embarrassing position before your readers of having used the lay press as a medium of publishing our work. A similar injustice has been done me and other Cleveland physicians on previous occasions by the *Leader* and other Cleveland newspapers. The injustice referred to is on the following account:

The only proper channels for publication for physicians is through the regular medical agencies—such as medical societies, medical journals, and medical books; original publication in the lay press is contrary to medical usage and medical policy. There is no objection to the publication in a newspaper of any previously published medical work, providing the source of such previous publication is at the same time stated. Some of the leading New York papers have the services of a physician who assists in preventing the publication of misinformation; of extravagant exaggeration of the commonplace; of unproven cures of diseases, awakening false hopes in thousands of sufferers; and of the humiliation of medical men by lack of editorial judgment. The Cleveland Academy of Medicine would, I am sure, be glad to recommend to the *Leader* or other Cleveland newspapers a member who would serve as medical censor and would doubtless suggest interesting material.

I am sure the *Leader* has no intention of placing me and my associates in the embarrassing position it has. May I request as an example the acknowledgement of the source of the article in question; and on future occasions either do likewise or preferably omit any reference to me again except my obituary notice which I trust will be paid for.

Respectfully yours,
G. W. Crile.

The Treatment of Malignant Tumors Based on the Affinity of Heavy Metals for Tumor Cells:—The results obtained by Wassermann with seleniueosin in the treatment of transplantable cancer are rather startling. Actual cures are reported to have been obtained by the injection into the blood of a combination of selenium and eosin. It has been shown that seleniueosin has a definite affinity for cancer cells, the selenium being deposited about the nuclei and causing a complete disintegration of the cells. After repeated injections the tumor becomes soft and fluctuating; ultimately it may be absorbed completely. The extreme toxicity of selenium, however, and the harmful effects of rapid absorption of large tumors make the treatment very hazardous and its death-rate high, so that its application to man is not warranted. Nevertheless, Wassermann's work opens a new avenue of research and encourages the hope that a cure for human cancer some day may be discovered.

Other efforts in the same direction are forthcoming. Thus Neuberg, Caspari and Löhe, working on the hypothesis that the greater autolytic power of tumor tissue as compared with normal tissue must be due either to a direct increase of certain ferments or to a defect in protective elements, tried to produce an active autolysis *in vitro* by the addition of colloids of a number of the heavy metals; therefore the workers mentioned tried to obtain salts and other compounds of heavy metals in such form as to be non-toxic for the host and yet to exercise a direct action on the tumor. This, it is said, they have succeeded in doing, but it is regrettable that they have chosen to withhold accurate information in regard to the substance used, merely stating that they employ "definite, for the most part crystalline, organic chemical compounds of a rather complex nature" of many of the heavy metals such as lead, silver, arsenic, antimony, vanadium, mercury, copper, gold, etc. Cobalt and silver were found to yield the most marked effects. The dosage ranged from 0.005 to 0.066 mg. per gram weight of the host.

The reaction following intravenous injection is described as most striking and rapid. Frequently within a minute afterward the tumor, it is said, may become hyperemic. A condition of stasis so extreme may develop that at times a serous exudate oozes from the surface. Hemorrhages may occur within the tumor, which in twenty-four hours becomes soft and fluctuating. Aspiration gives the detritus of a typical autolysate, with various protein end-products—albumoses, peptones, amido-acids, etc. Microscopically no intact tumor cells are found. The injected metal can be isolated from the detritus by chemical means. Primary and transplanted carcinomas of mice, rat sarcomas, and an adenocarcinoma of a dog all yielded readily to the treatment and disappeared completely. As many as twelve injections were given in some cases. In the case of the dog, however, it was found that the toxic dose was smaller for unit of body weight than that for the rat, and still smaller than that for the mouse. The dog sickened during the operation and died some six days afterward. Its death is attributed by the authors to the distemper, but was probably hastened by the absorption of the toxic products of autolysis from the softened tumor.

Although they are not at present capable of application to human cancer, these experiments are valuable because they show that malignant tumors are capable of a specific reaction to agents which do not injure the other tissues. It is hoped that trial of the metal compounds by other workers will give like results. Further development will be awaited with great interest.—J. A. M. A., lix, 726.

Medical News

The International Congress for the Study of Infantile Hygiene and Pathology was opened at Paris, October 7.

Red Cross Prizes. For their inventions for the alleviation of human suffering, Major Paul S. Halloran and Capt. Henry L. Brown, M. C., U. S. Army, received \$505.05 each on September 7, as prizes awarded by the Ninth International Red Cross Conference recently in session in Washington. These prizes are from the fund donated for this purpose by the Empress Marie Feodorovna of Russia.

Prize for Work on Criminal Anthropology. The Lombroso prize of \$200 (1,000 lire) is to be awarded at the eighth international congress on criminal anthropology, to be held at Budapest in 1914. Competition is open to the world; the prize is to be given for the best work or most important discovery in this field between 1911 and 1914. The committee in charge of the congress and awarding of the prize includes Prof. G. Aschaffenburg, Cologne, Germany, and Prof. J. von Balogh, Budapest, Hungary.

The Harriet Lane Home for Children, Johns Hopkins Hospital, the hospital of the department of pediatrics of the university, erected at a cost of \$300,000, was opened October 1.

Philadelphia Home for Feeble-Minded. Contracts have been awarded for what is said to be the first municipal institution for the care of the feeble-minded in this country. For the establishment of the institution the city of Philadelphia has appropriated \$250,000 and the state of Pennsylvania \$200,000.

The Middletown Goldsmith Lectures of the New York Pathological Society were delivered by E. F. Bashford, director of the Imperial Cancer Research Fund of England, October 2 and 4, the subject being A Review of Recent Cancer Research.

The Lectures of the Harvey Society, New York, for the season of 1912-13 are as follows: Modern Steam Sterilization, Max Rubner, University of Berlin, October 5. The Localization of Impulse Initiation and Conduction in the Heart, Joseph Erlanger, George Washington University, November 9. The Rate of the Blood-Flow and the Vasomotor Reflexes in Disease, G. N. Stewart, Western Reserve University, November 23. The Infectious Lesions of Blood-Vessels, F. B. Mallory, Harvard University, December 14. The Prevention of Typhoid Fever, Major J. J. Russell, U. S. A., January 18. Nephritic Hypertension: Clinical and Experimental Studies, Theodore C. Janeway, Columbia University, February 15. The Size of Organisms and their Constituent Parts in Relation to Longevity, Senescence, and Rejuvenation, Edward G. Conklin, Princeton University, March 1. The Scientific Basis for the Artificial Feeding of Infants, John Howland, John Hopkins University, March 22.

The Herter Lectures. The seventh annual course of lectures of the Herter foundation of Johns Hopkins University was delivered by George H. F. Nuttall, Quick professor of biology in the University of Cambridge, England, October 8-9-10, on spirochetosis, trypanosomiasis and piroplasmosis.

The National Association for the Study and Education of Exceptional Children holds its third annual conference at the College of the City of New York, October 30 and 31 and November 1.

The Washington County Medical Association met at Marietta, October 1. Papers were presented by C. E. Grimm of St. Marys and S. A. Cunningham of Marietta.

The Marion County Medical Society, at its meeting in Marion, October 1, held a symposium on typhoid fever.

The Summit County Medical Society met at Akron, October 1. The program was as follows: Cerebral Hemorrhage, by W. W. Leonard; Specific Medication, by T. D. Hollingsworth; Report of a Case of Fracture of the Base of the Skull, by C. E. Held; Case Report, by F. M. Hughes.

The Ninth District Medical Society, at its tenth annual meeting held at Ironton, October 1, elected the following officers: President, A. L. Test; Secretary, L. G. Locke, both of Portsmouth, where the next meeting is to be held. The program was as follows: Hyperthyroidism, by W. F. Marting, Ironton; Practical Treatment of Nervous Ill Health, by S. P. Fetter, Portsmouth; Some Reasons for Mistakes in Diagnosis, by Frank Winders, Columbus; The Kidney, by Martin H. Fisher, Cincinnati.

The Northwestern Ohio Medical Association met at Lima, October 3 and 4. Papers were presented as follows: Diagnosis of Tuberculosis of the Kidney, by E. A. Murbach, Archbold; Value of Correct Diagnosis, by J. U. Fauster, Paulding; Ectopic Gestation, with Report of Cases, by J. V. Hartman, Findlay; Diagnosis of Pneumonia, by W. H. Maddox, Wauseon; Twenty Years of Medical Practice, by J. E. Graewe, Cincinnati; Surgical Address, by C. M. Paul, Cincinnati. The following officers were elected: President, E. G. Burton, Lima; Vice-President, W. A. Belt, Kenton; Secretary, S. D. Foster, Toledo; Assistant Secretary and Treasurer, E. H. Porter, Tiffin; Councillor, Third District, D. O. Weeks, Marion; Councillor, Fourth District, C. N. Smith, Toledo. The next meeting will be held at Findlay.

The Canton Medical Society met at Canton, September 27. Cases were presented by C. E. Schilling and E. L. March.

The Miami County Medical Society held its regular meeting at Piqua, October 3. The program was as follows: Diseases of the Throat, by O. M. Rott; Report of Clinical Cases, by J. H. Baker and J. B. Barker.

The Wayne County Medical Society met at Wooster, October 8, the following program being presented: Diagnosis of Extrauterine Pregnancy, by O. G. Grady, Orrville; The Mentally Defective Child, by Isabel A. Bradley, Akron; Report of Cases, by J. R. Jameson, Applecreek.

The Lorain County Medical Society met at Lorain, October 8. S. V. Burley presented a paper on Headache.

The Athens County Medical Society at its meeting at Athens, October 8, was addressed by A. Ravogli, of Cincinnati, on The Diagnosis of Diseases of the Skin.

The Muskingum County Medical Society met at Zanesville, October 9. The program was as follows: The Need of Medical Inspection, by W. C. Bateman; Carcinoma and Operations as Practiced by Wertheim of Vienna, by W. A. Melick.

The Morrow County Medical Society met at Mt. Gilead, October 9.

The Columbiana County Medical Society met at East Palestine, October 9. S. R. McCready, Leetonia, presented a paper on Arteriosclerosis.

The Annual Conference of the State Board of Health with village and township health officers of southern Ohio was held at Columbus, October 24 and 25.

New Hospital at Tiffin. Work has been begun on the new Mercy Hospital.

The Board of Health of Columbus adopted resolutions, October 4, censuring County Prosecutor Turner for his public criticisms on the inspection of meat and milk.

Thomas H. Greenough, Cleveland, has been cited to appear before the State Medical Board to show cause why his certificate should not be revoked, because of the alleged offering of fake cures for cataract and other eye diseases.

G. J. Waggoner has been made advisory physician to the board of education of Ravenna.

Silas Hiller has been appointed a member of the State Board of Medical Registration and Examination to succeed James M. Stevenson.

C. E. Holzer of Gallipolis is making a six weeks' visit to eastern clinics.

Ill and Injured—J. B. McHenry of Hanoverton had a rib fractured in an automobile accident. C. S. Judy of Miamisburg suffered a fractured clavicle and A. A. Jenkins of Cleveland a broken tibia as the result of falls. C. B. Terwillinger of Milford and J. D. Southward of Upper Sandusky, who have been seriously ill, are reported to be convalescing.

Removals—O. A. Rhoades of Washingtonville has removed to Leetonia. C. E. Little has removed from Rockbridge to Logan.

J. H. Hewitt, formerly resident pathologist at Charity Hospital and at the Lakeside Hospital, Cleveland, has been made professor of pathology and bacteriology at Baylor University, Dallas, Texas.

J. W. Tippie of Columbus has been indicted for manslaughter because of the death under chloroform of a patient during an operation.

Epidemic Diseases in Ohio—Diphtheria is prevalent in many sections of the state; because of epidemics schools have been closed at Nottingham, Springfield, East Youngstown, London and Coldwater. At Minerva and Tiffin schools have been closed because of scarlet fever, at North Lewisburg because of cerebrospinal meningitis, and at Hillsboro because of poliomyelitis.

The Charity Hospital Medical Society met October 16. The program was as follows: Presentation of Medical Cases, F. B. Oldenberg; Presentation of Surgical Cases, M. J. Brickman; Presentation of Gynecological Cases, H. H. Smith; Interesting Cases of X-ray Diagnosis, Geo. F. Thomas; Case Report of Typhoid Followed by Streptococcus Meningitis, J. J. Thomas.

Thomas Wingate Todd, M. B., Ch. B., F. R. C. S., at present Lecturer in Anatomy at Victoria University, Manchester, England, has been appointed Henry Willson Payne Professor of Anatomy in the Medical Department of Western Reserve University. Doctor Todd will take up his duties at Cleveland about December 10.

Deaths

Lucian Bailey, Medical College of Ohio, Cincinnati, 1902, died at Friendship, August 26, aged 35.

William R. Osborn, Cincinnati College of Medicine and Surgery, 1874, died at Petersburg, Indiana, September 8, aged 73.

James Henry Barbour, Medical College of Ohio, Cincinnati, 1852, died at Falmouth, Ky., September 8, aged 88.

Adam M. Beers, University of Pennsylvania, 1863, died at Newcomerstown, September 10, aged 71.

Robert Drakely Gardner, Eclectic Medical Institute, Cincinnati, 1855, died at Leon, Iowa, September 13, aged 86.

Frank Edward Lewis, Cleveland University of Medicine and Surgery, 1886, died September 10, at Albany, New York, aged 57.

Francis Hosea Fisk, Eclectic Medical Institute, Cincinnati, 1857, died at Nashville, Tenn., September 13, aged 76.

Thomas Corwin Tipton, Starling Medical College, Columbus, 1852, died at Williamsport, September 28, aged 85.

J. H. Reynolds, Cincinnati College of Medicine, 1876, died at Lawrenceville, September 26, aged 64.

Edwin F. Evans, Hahnemann Medical College, Chicago, 1891, died at Massillon, October 1.

Isaac V. Wirebaugh, Western Reserve University, 1890, died at Prairie Depot, October 1, aged 49.

James S. Ferguson, Medical College of Ohio, Cincinnati, 1861, died at Camden, October 2, aged 77.

Francis E. Chase, Cleveland Medical College, 1894, died at Cleveland, October 5, aged 49.

A. W. Bricker, died at Arcadia, October 7, aged 77.

Daniel W. Loney, University of Michigan, 1885, died at Norwalk, October 7, aged 51.

Hugh G. Campbell, Miami Medical College, Cincinnati, 1882, of Logan, died at Columbus, October 9, aged 53.

Bert E. Thomas, Ohio Medical College, Columbus, 1893, died at St. Marys, October 13, aged 42.

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A Clinical Study of the Elimination of Phenolsulphone-phthalein by the Kidneys, with a Report of 150 Cases

By HENRY L. SANFORD, M. D.

(From the Genitourinary Department of the Surgical Service of The Lakeside Hospital, Cleveland.)

Before we can correctly interpret the results of any test of the functioning power of an organ, we should first know the normal function of that organ. In the case of the kidney the separation of the urine from the blood is a complex process which has long been studied by physiologists and its exact nature is not yet definitely settled. The best authorities today are agreed in declaring that it is not only a physical filtration, but also a true glandular secretion produced by the selective activity of living cells in absorbing from the blood certain substances. The water and salts of the urine, together with sugar including the sugar of diabetes, are probably chiefly separated by the glomeruli. Urea, uric acid and the other organic constituents of the urine are excreted by the physiological activity of the rodged epithelium of the tubules.

If this may be assumed as the function of the kidney in health, in disease we find various alterations in function depending on the nature of the pathological process. These are evidenced in the urine by changes in the character and amount of the normal constituents and by the appearance of abnormal constituents, both of which may be easily recognized by chemical and microscopical analysis.

It would seem that the ideal way to measure changes in renal function would lie in the quantitative estimation of the amounts of normal and abnormal constituents excreted in disease and compare them with amounts excreted in health under controlled diet.

Read before the Clinical and Pathological Section of the Academy of Medicine of Cleveland, December, 1911.

These studies in metabolism, however, beside being beyond the time, training and resources of the average clinician have been proven by von Noorden to be unreliable, even when done with all the care they demand.

It is further well recognized that the routine chemical and microscopical examinations of the urine fail in many instances to record accurately the real amount of damaged kidney tissue. The amount of albumen and casts in a urine, for instance, is not an indicator of the degree of injury to renal substance, as these elements may be absent in severe types of nephritis, and present in cases where there is no serious lesion of the kidney itself.

It is for this reason that the surgeon and physician have demanded other simpler and surer means of judging kidney function. The careful surgeon today does not undertake any operation except in emergency cases, until he is certain that the kidneys are in a condition to bear any added strain put upon them by the operation. This is especially true in operations upon the genitourinary tract. In the case of an obstructing prostate, for instance, the surgeon must know whether the back pressure on the kidneys has so damaged their efficiency as to prevent a recovery following removal of the prostate. Especially in kidney operations the surgeon must feel certain that the supposedly normal kidney is in a condition to permit the removal of the other diseased kidney. In cases of renal calculi in one or both kidneys, the surgeon must know which of the two kidneys is doing the greater amount of work in order to decide what operation is indicated.

The physician, also, in his cardiorenal cases and in the various types of nephritis must have some definite index as to the amount of damaged kidney tissue to guide him in his treatment. In response to this demand from physician and surgeon during the past twenty years many kidney functional tests have been brought forward by different workers in this line, each one of which has presented its merits and its limitations.

Two years ago Geraghty and Rowntree¹ published a research on the use of phenolsulphonephthalein as a kidney functional test and their claims for the results they obtained with the drug in this connection were so striking that various observers throughout the country have since taken it up and worked with it. This report is a preliminary statement of our work with the drug during the past year and a half.

The Drug:—The drug is a bright red crystalline powder soluble in water and used in an alkaline solution which has been proved experimentally to be absolutely nontoxic to animals and man, probably even less so than sodium chlorid. In normal cases it appears in the urine in one hour after administration by mouth; in ten minutes, or less, after subcutaneous or intramuscular injection, and in three to five minutes when given intravenously. It has the peculiar property of being excreted almost entirely by the kidney and for that reason is especially suited to kidney functional work. Elimination of the drug by the normal kidney is practically complete in two hours. The color of the drug also lends itself well to colorimetric methods, another point in its favor. We have used a biologically standardized solution, each cubic centimeter of which contains 6 mgm of the drug, as prepared by Hynson, Westcott & Company of Baltimore.

Technique of the Test:—We have followed the technique as described by Geraghty¹ with but few modifications. The ureters are catheterized if the work of each kidney is to be studied, or the bladder alone is catheterized if the total work of both kidneys is to be estimated. One cubic centimeter of the standardized solution is then given intramuscularly or intravenously, noting the exact time of injection. The urine from the ureter catheter or the bladder catheter, as the case may be, is then collected in a test-tube containing a small amount of a 25 per cent solution of sodium hydroxide, as the pink color of the drug is only evident in an alkaline solution; in acid solutions it gives a golden yellow color. The first pink tinge in the urine is the sign of the appearance of the drug, and the exact time of this is noted.

As a routine we have given the drug intramuscularly in the upper arm or thigh. In our later cases, especially where the ureters were catheterized, we have given the drug intravenously in a vein of the forearm. The quicker time of appearance and more rapid elimination of the drug when so given obviate keeping the ureter catheters in position for so long a time. Our observations show that as much of the drug is eliminated in one-half hour after intravenous injection as appears in one hour by the intramuscular method.

Where hematuria is present, it may be difficult to tell exactly when the drug first appears in the urine. A little experience, however, teaches one that a reddish or pinkish color of the urine,

due to blood, changes to a brownish tinge when the urine mixes with the sodium hydroxide in the tube used for collection, and is very different from the permanent pink color which occurs when urine containing the drug mixes with the sodium hydroxide.

In cases of ureteral catheterization, the catheters are allowed to remain in place for one hour after the appearance of the drug if given intramuscularly, and for one-half hour if given intravenously, and the urine is collected in separate tubes. With the removal of the cystoscope we have found that patients with catheters in the ureters suffer little or no inconvenience and are usually very comfortable.

When the bladder only is catheterized, the catheter is removed as soon as the drug appears. Where the patient can void, and there is no retention, he empties his bladder at the end of one hour, and again at the end of two hours from the time of the appearance of the drug. In prostatic cases and in cases where there is retention, catheterization at the end of the first and second hours is advisable, as otherwise a portion of the excreted drug may be lost in the residual urine. In these cases there is often an inlying catheter present, and after the appearance of the drug the catheter may be clamped off and the urine withdrawn at the end of the first and second hours.

The estimation of the amount of drug excreted is very simple and is done by colorimeter. We have used the Gallenkamp instrument and the Hellige instrument; the latter is less expensive and very satisfactory. The urine of the first hour is made strongly alkaline with the sodium hydroxide solution to bring out the maximum color, diluted to one liter with water and compared with a known amount (generally 3 mgm) of the drug diluted to a liter. From the reading on the scale when the two color fields match is estimated the percentage of the drug excreted during the hour; the same is done with the second hour specimen, and the two readings combined to make the total drug excretion. In the ureteral catheterization cases the work of each side for one hour or one-half hour is compared to give an estimate of the relative efficiency of each kidney. When the amount of drug excreted is small, a more correct reading and a stronger color will result from a dilution to 500 cubic centimeters only, with corresponding allowance in reckoning the percentage.

Certain difficulties in getting satisfactory readings by colorimeter occur from the presence of urinary pigments and blood in

the urine to be tested, so that no corresponding colors can be secured in the two sides of the colorimeter. These difficulties are easily obviated, however. In the case of urinary pigments the standardized solution of the drug may be diluted with the patient's own urine previously collected, and compared with the diluted urine to be tested. Blood, if present in large amounts, may be removed from the urine by boiling and filtering, and the color comparison then made.

Geraghty recommends giving the patient 300 to 400 cubic centimeters of water one-half hour before the test, to insure a good amount of urinary secretion. Cabot³ declares that this detail, which is rather unpleasant to patients, is unnecessary, in that just as much drug is excreted with a small liquid output as with a large amount. Our results corroborate this finding, but we feel that in cases where the ureters are to be catheterized, possibly there will be less reflex inhibition due to the presence of the catheters if the patient has drunk a considerable amount of water shortly before the test.

Control Cases:—We have used this test in various classes of cases. In order to obtain an estimate of the average standard elimination of the drug by the normal kidney, over thirty control tests were done on as many patients in whom the kidneys were apparently normal. Of these, twenty-four were selected from a large range of diagnoses to make up an average. The others were rejected as unfair to the test for renal or cardiorenal causes. In all these cases the drug was given intramuscularly. The results appear in Table 1.

ANALYSIS OF TABLE 1:

Time of appearance of drug:	quickest, 5 minutes slowest, 13 minutes average, 8 minutes
1st hour elimination:	maximum, 83 per cent minimum, 20 per cent average, 42 per cent
2nd hour elimination:	maximum, 45 per cent minimum, 9 per cent average, 25 per cent
Total 2 hour elimination:	maximum, 93 per cent minimum, 34 per cent average, 67 per cent

Nephritis:—We also have a group of nephritis cases on which we have made tests. It represents too small a number of cases on which to base a report. This work is now being carried out with careful control observations by a member of the medical house-staff at the Lakeside Hospital, and will be the subject of a subsequent report.

Anesthesia Cases:—At the suggestion of Doctor Crile we have studied a group of anesthesia cases to see if the drug would indicate different after effects of ether and nitrous oxide on the kidney. The tests were made twenty-four hours before the anesthetic and within a few hours afterwards and the results compared. The cases of gas anesthesia gave almost exactly the same output of phthalein after anesthesia as before, showing apparently no effect on the kidney from the anesthetic. The ether cases have been rather contradictory. In short anesthetics the output of the drug was almost doubled after ether, and in long operations it was generally diminished. It seems probable that a short ether anesthetic is a renal stimulant, while a longer one is a depressant. So many other factors enter into a renal functional test done within a few hours after an operation, that this can only be a conjecture. The uniform output before and after nitrous oxide however is striking.

Prostatic Cases:—Geraghty and Rowntree in their original article¹ pointed out that the use of the drug had been of great help to them in prostatic cases, in that a low phthalein output where there was residual urine and back pressure on the kidneys, was an indicator of lack of ability of the kidneys to stand the added strain put on them by a prostatectomy. They further claimed that if such cases, when put on constant drainage with forced liquids and relief of back pressure showed, to successive tests, an increased phthalein excretion, the prognosis was good for recovery from operation, from the kidney standpoint, at least.

In our short series we have had few striking corroborations of these claims, but we feel that the drug has been of very distinct value to us in deciding operability of certain cases. The results of our tests appear in Table 2.

ANALYSIS OF TABLE 2: Cases P 1, P 4, P 5, represented inoperable carcinomas of the prostate.

Case P 2 showed a fairly low output of the drug on entrance to the hospital (22 per cent). After putting the patient on constant drainage with forced liquids, the output rose to 47 per cent

in a few days. The patient was then discharged to the care of his physician for a short time and returned to the hospital, was operated and made an excellent recovery.

Case P 7, had a fairly low output at both tests on entrance. Other clinical data seemed to point to a successful outcome and he was therefore operated and made a good recovery.

Cases P 8 and P 9, offered striking evidence of the fact that the extremely low phthalein excretion gave warning of a rapidly approaching dissolution before it was made equally evident by other clinical signs. One patient walked into the hospital and the other seemed in no immediate danger. Tests were done immediately, and the low output as an evidence of kidney insufficiency was substantiated by their rapid decline and death in a few days. No operation was considered in either case.

In Case P 11, the fatal outcome cannot be ascribed to kidney inefficiency, and the phthalein test was considered to have reflected correctly the general renal power.

Six tests were done on Case P 12, over an interval of some weeks. The patient on entrance had the enormous amount of 3000 cubic centimeters of residual urine. The prostate was not greatly enlarged, and after being placed on constant drainage the bladder musculature did not seem to regain any tonicity. The kidney power seemed to increase when the back pressure from the bladder was removed, but the patient declined an operation on the ground that after removal of the prostate he might suffer as much as before on account of bladder atony. The series of phthalein tests is interesting in showing the gradual rise in excretion of the drug during several weeks under improved bladder conditions.

Case P 17, excreted a satisfactory output of the drug, although from his general clinical appearance, one would not look upon him as a very favorable operative risk. He was operated and made a prompt recovery. I doubt if the surgeon would have been equally ready to operate unless he had had faith in this test. On the other hand, Case P 7, was a much younger man, whose general clinical findings gave an excellent prognosis, but whose renal power as shown by this test was apparently on the borderline of insufficiency. He made an excellent recovery after operation. In one case the surgeon gave the evidence furnished by the test great weight in deciding the question of operation; in

the other it was disregarded on account of other favorable factors.

More than one test should be done on these prostatic cases, as the output shows considerable variation on different days due to outside influences, and it is unsafe to draw conclusions from the results of one test. We have noticed in cases where back pressure on the kidneys has existed for some time, that the excretion of the drug during the first hour after its appearance in the urine is often less than that of the second hour. Normally the reverse is true.

From our work with the drug in prostatic cases, we feel that we have learned the following: These statements agree closely with the conclusions of Geraghty and Rowntree in their original article.

(1), *When in any prostatic case the appearance of the drug in the urine is delayed beyond thirty minutes after its injection, and the amount excreted in two hours is markedly diminished (below 20 per cent), a grave renal impairment is indicated. No operation should be considered in such a case until preliminary treatment (diuresis, bladder lavage, relief of back pressure on the kidneys) has determined whether this impairment is temporary or permanent.*

(2), *When, under such preliminary treatment, successive tests show a quicker time of appearance of the drug after injection, and an increasing output in two hours, the prognosis for operation is correspondingly improved from the kidney standpoint. A continued low or a decreasing elimination of the drug in successive tests offers a grave warning against operation, even if no other clinical symptoms point to an approaching anuria.*

Surgical Kidney Cases: It has been in this series of kidney cases that we have secured the most striking results and the greatest help in our work from the use of the drug. In cases of unilateral or bilateral disease of the kidney it is necessary to obtain the urine separately from each kidney to determine the amount of work of which each is capable. Catheterization of the ureters is the surest means of getting this information, and this was done in this series, except in the few cases where it was impossible. In some instances where only one ureter could be catheterized, the bladder urine was collected to represent the secretion of the other side. In our earlier cases the drug was given intramuscularly, and the urine collected from the ureter catheters

after removal of the cystoscope, for one hour after the appearance of the drug. In the later cases the drug was given intravenously, and on account of its quicker appearance in the urine, and more rapid elimination, the urine was collected from the ureter catheters for only one-half hour after its appearance, making the test easier for the patient and giving just as dependable results for comparison.

It has been proven that the time of appearance and amount of elimination of the drug is approximately equal for two normal kidneys for the same period of time. In the following series it will appear that a diseased kidney shows a delay in appearance and diminution in output of the drug as compared with the other healthy kidney. This series is given in two tables, No. 3A and No. 3B. The former contains data of cases in which it was possible in each instance to catheterize both ureters, enabling a complete comparative study of the urine from both sides. Table 3B represents tests where this was not possible, and other miscellaneous tests which will be analyzed later.

ANALYSIS OF TABLE 3A: It will be convenient to consider these cases in groups according to diagnoses rather than in the order in which they appear in the table which represents the sequence of the tests.

Cases of Renal Calculi compose the largest group of the series. The calculi were bilateral in two cases and unilateral in six.

Case K 1, was that of a man who had had calculi removed by nephrotomy from both kidneys at various times by a distinguished surgeon in another clinic. On admission to the hospital radiographs showed several calculi present in both kidneys, and his general condition during the past few months had steadily failed. Catheterization of the ureters with administration of phthalein showed a great delay in appearance of the drug (right, eighty minutes; left, sixty minutes). Only a trace was excreted in one hour on the right and but 5 per cent on the left, and the microscopical examination of the sediment showed an apparently worse condition on the right than the left.

The patient was discharged without operation for some weeks and then returned to the hospital in a still worse condition. It seemed to the surgeon that the case presented a choice between letting the patient die without operation, or removing the appar-

ently worse kidney on the chance that the remaining kidney might improve with the handicap of the other taken away. A right nephrectomy was performed and the patient did fairly well for about three weeks. Twenty-four hour excretion of urine varied between 600 and 1000 cubic centimeters. After the close of the third week, however, he rapidly declined and autopsy showed a large abscess in the remaining kidney.

Case K 5, presented a calculus of one kidney, but it will be considered under the tuberculosis group, as that seemed to be the major lesion.

Case K 6, was another instance in which calculi had previously been present in both kidneys. After ureteral catheterization 3 cubic centimeters of urine were collected in one hour from the right side as against 125 cubic centimeters from the left. The drug appeared in nine and one-half minutes on the right and five and one-half minutes on the left. There was only a trace of the drug excreted in one hour on the right as against 26 per cent on the left. It seemed best to the surgeon to do a nephrotomy on the right side for the removal of the calculi, and this was followed by recovery.

In Case K 7, right renal calculi, the phthalein test sharply brought out the difference in efficiency of the two kidneys. Ureteral catheterization and comparison of the separated urines showed the following:

	Right	Left
Color	turbid	clear, amber
Reaction	acid	acid
Specific Gravity	not taken	1010
Amount collected	25 ccm	160 ccm
Time of appearance	16 minutes	5 minutes
Amount excreted in 1 hr.	2 per cent	39 per cent

It will be seen that the kidney containing the calculi secreted one-sixth the amount of urine and about one-twentieth the amount of drug that the other kidney produced, and that the drug appeared after injection in one-third the time on the normal side as compared with the other. In this case it was perfectly apparent that the left kidney was doing practically all the work, and a right nephrectomy was followed by a rapid recovery.

Case K 11, was a striking case. Ureteral catheterization showed the following:

	Right	Left
Color	(No urine obtained	Pale turbid
Reaction	from right ureter)	Acid
Amount collected		30 ccm
Time of appearance		8 minutes
Microscopic findings		few leucocytes
Amount of drug excreted		35 per cent

In this case the time of appearance of the drug from the left side was within normal limits, and the amount of drug excreted in the first hour by the left side alone was nearly normal for two healthy kidneys; accordingly the surgeon could feel sure that the left side alone could take care of the entire renal elimination, and that he would be safe in operating, no matter what condition existed on the right. A right nephrectomy was done and the right ureter was found to be entirely blocked by a branching calculus in the pelvis which projected into the ureter, and which accounted for the absence of urine from the right side.—Recovery.

In Case K 21, the X-ray showed calculi in the left kidney and ureter. Phthalein appeared in four and one-half minutes on the right as against ten minutes on the left. In the first fifteen minutes after its appearance in the urine 18 per cent was eliminated on the right as compared with 2.5 per cent on the left—a ratio of 7 to 1. This apparently showed that the right side was capable of doing all the work, and that practically nothing was being done by the left kidney. Left nephrectomy was done with uneventful recovery.

Case K 23, gave a typical history of repeated renal colic on the right, and X-ray showed calculi apparently in the right kidney and ureter. After catheterizing the ureters, no secretion was obtained from the right side, but the drug appeared in normal time and amount on the left. The surgeon intended, on the strength of these findings, to do a right nephrectomy, but at operation found a horse-shoe kidney. Nephrotomy was followed by a complete recovery.

Case K 32, calculus of the left kidney, showed a striking difference in the power of the two sides to eliminate phthalein. The drug appeared in four minutes on the right and in seventeen minutes on the left; 13 per cent being eliminated on the right in the first fifteen minutes as against a trace on the left. Left nephrectomy. Recovery.

In this short series of calculus cases, the drug seemed in each instance to reflect correctly the relative amount of work

which was being done by the healthy and diseased kidney as shown by the difference in elimination of the two sides.

Cases of Renal Tuberculosis were six in number; in three of them, however, the ureters could not be catheterized, so that it was impossible to judge of the relative efficiency of each kidney, and they appear in Table 3B.

Case K 5, was a young girl whose urine was very purulent, and whose radiograph showed renal calculi. Ureteral catheterization and injection of phthalein gave the following information:

	Right	Left
Color	amber	pale, cloudy
Specific Gravity	1012	not taken
Amount collected	60 ccm	6 ccm
Time of appearance.....	9 minutes	unknown (greatly delayed)
Microscopic findings.....	normal	pus, renal cells, oxalate crystals
Amount of drug excreted	40 per cent	trace

This comparison proved clearly that all the work was being done by the right kidney, and a rapid recovery followed a left nephrectomy. The left kidney was tuberculous and filled with calculi. No tubercle bacilli were ever found in the urine.

In Case K 25, the drug appeared in normal time and amount from the right side. The left ureter could not be catheterized, and urine collected from the bladder to represent the left side showed no drug in thirty-three minutes after injection, apparently proving greatly damaged permeability on that side. Left nephrectomy. Recovery. The kidney proved to be tuberculous.

Case K 28, showed the following comparison of separated urines:

	Right	Left
Color	purulent, pale	amber, clear
Reaction	acid	acid
Amount collected	10 ccm	15 ccm
Time appearance	30 minutes	10 minutes
Chemical analysis	albumen	normal
Microscopic analysis.....	pus, tubercle bacilli	normal
Amount of drug $\frac{1}{2}$ hour	trace	21 per cent

It will be seen that the affected right side as compared with the healthy kidney secreted less urine in a given time; that it took the drug three times as long to make its appearance from the tuberculous side, and that only a trace was eliminated in one-half hour as against a normal amount for that period of time on the normal side. Right nephrectomy. Recovery.

Tumors of the Kidney: Case K 8, entered the hospital with symptoms of painless hematuria and a palpable tumor of

the right kidney region. The following data were secured from the phthalein test and ureteral catheterization:

	Right	Left
Color	bloody	clear, amber
Reaction	acid	acid
Amount collected	40 ccm	75 ccm
Time of appearance.....	uncertain	5 minutes
Chemical analysis	albumen	normal
Microscopic findings	blood, pus	normal
Amount of drug excreted	18 per cent	38 per cent

The left side here excreted a normal amount of the drug for one hour with normal time of appearance and performed twice as much work as the right side. A right hypernephroma was removed at operation with recovery.

Case K 9, also had hematuria as the "presenting symptom." Three tests were done; one by ureteral catheterization and two from the bladder urine, in which it was established that the blood came from the right kidney and that the left side excreted a fair amount of drug, though its appearance was considerably delayed. Exploratory incision disclosed an inoperable hypernephroma.

Case K 20, was a third case of hypernephroma. The separated test gave the following:

	Right	Left
Color	smoky	amber
Reaction	acid	acid
Amount collected	10 ccm	40 ccm
Time appearance	10½ minutes	10½ minutes
Chemical analysis	trace albumen	normal
Microscopic analysis.....	blood and pus	normal
Amt. of drug in 1 hr.....	10 per cent	30 per cent

Here the normal side excreted four times as much urine and three times as much drug as the other side in the same time. Right nephrectomy. Recovery.

Case K 26, presented a palpable tumor of the right kidney region. The following data were obtained:

	Right	Left
Color	(No urine obtained from right ureter)	amber
Reaction		acid
Specific Gravity		1014
Amount collected		55 ccm
Time of appearance.....		3 minutes
Chemical analysis		normal
Microscopic analysis		normal
Amount of drug in ½ hour.....		40 per cent

Inasmuch as the work done by the left side alone was more than equal to the work ordinarily done by two healthy kidneys, the surgeon had no hesitation in removing the right kidney, which showed hypernephroma. Recovery. This was a striking illus-

tration of the value of the test, as here it gave the surgeon a true measure of the efficiency of the healthy kidney, which was precisely what he had to know before he was justified in doing a nephrectomy; especially as no information had been obtained as to the amount of work being done by the other kidney.

Miscellaneous Cases: Under this heading are grouped certain cases which present points of interest.

The phthalein test in Cases K 2 and K 3, who entered the hospital with symptoms which seemed to point to the kidneys, gave valuable negative evidence which proved that the kidneys were normal. In both cases other diagnoses were made and the symptoms cleared up.

Case K 22, which is diagnosed as "essential hematuria" in default of a better diagnosis, presented as its principal symptom the presence of blood in the urine. The phthalein test with ureteral catheterization gave these findings:

	Right	Left
Color	bloody	amber
Reaction	acid	acid
Specific Gravity	1014	1014
Amount collected	200 ccm	200 ccm
Time of appearance.....	5 minutes	5 minutes
Chemical analysis.....	trace albumen	normal
Microscopic findings	blood	normal
Amount of drug.....	15 per cent	35 per cent

Here the two columns above are identical, except that the secretion of the right side contains blood, and less than half as much phthalein is eliminated on the right as on the left. At operation the right kidney externally appeared normal. On splitting it no lesions were found and it was closed. The patient made a good recovery, and the hematuria never recurred.

Case K 24, illustrates a very even amount of work done by the two kidneys, both of which were the seat of a colon bacillus infection:

	Right	Left
Color	smoky	amber
Reaction	acid	acid
Amount collected	20 ccm	20 ccm
Time of appearance.....	4 minutes	6 minutes
Chemical analysis	trace albumen	trace albumen
Microscopic analysis	blood, pus, hyalin casts	blood, pus, hyalin casts
Amount of drug.....	14 per cent	14 per cent

Pure cultures of colon bacillus grew from the specimens of both sides.

Case K 27, entered the hospital with an apparent renal colic of the right side. After ureteral catheterization a small amount

of blood appeared in both urines with a few leucocytes. Renal permeability seemed to be profoundly affected at that time, for only 2 per cent of the drug appeared on the right in thirty-five minutes after administration and 4 per cent on the left. The patient's symptoms rapidly cleared up and no opportunity for further tests was offered.

ANALYSIS OF TABLE 3B: This group represents (1), certain surgical kidney cases where for various reasons it was impossible to catheterize the ureters, and where an estimation of the total functional power of both kidneys was taken from the bladder urine; (2), a series of postoperative tests done on cases where one kidney had been removed, in order to see whether the remaining kidney would excrete an amount of drug equal to that shown in the preoperative test; (3), a number of cases where the total function of both kidneys was estimated on the day following a ureteral catheterization at which the relative amount of work done by each side had been studied; and (4), certain other unclassified tests.

(1). Taking these three classes in order; under the first class are included K 14, an inoperable hypernephroma, and K 15, K 16 and K 17, cases of tuberculosis of the kidney, in all of which no satisfactory comparative study of each kidney's power for work was possible.

(2). Postoperative Tests: This is an interesting group of tests done on the remaining kidney some days or weeks after nephrectomy, and in each instance we have found that the remaining organ alone has eliminated as much, or more phthalein than was excreted from both organs before operation.

Case K 5, tuberculosis of left kidney with calculi, eliminated 40 per cent of phthalein from the right side, and a trace only from the left in one hour in the preoperative test. After nephrectomy, 70 per cent of the drug appeared from the remaining kidney in one hour, which is a very high percentage for two normal kidneys.

Case K 7, right renal calculi, before nephrectomy showed 2 per cent of the drug on the right in the first hour, and 39 per cent on the left. After nephrectomy the remaining organ excreted 50 per cent in the first hour and 30 per cent the second hour, a total of 80 per cent, which is a high output for a normal individual.

Case K 10, left renal calculi; the drug appeared in fourteen minutes on the right, and in sixteen minutes on the left side, with an elimination of 15 per cent in one hour on the right, and a trace on the left. Two weeks after nephrectomy the drug collected from the bladder urine showed that the remaining kidney excreted the drug in eight minutes with 25 per cent in the first hour, 24 per cent in the second hour, a total of 49 per cent. This represents a quicker time of appearance and a larger amount of drug for the same time than was eliminated by both kidneys before operation.

Case K 11, right cystic kidney with calculi, is another instance in which the drug appeared in eight minutes from the left side and 35 per cent was excreted in the first hour. Ten days after nephrectomy the drug appeared from the remaining left kidney in six minutes and showed 49 per cent in the first hour, 15 per cent in the second hour, a total of 65 per cent. Here again is a quicker time of appearance, and a larger amount of elimination than before operation.

Case K 20, right hypernephroma, showed 40 per cent of the drug, 10 per cent on the right and 30 per cent on the left in the first hour. Ten days after nephrectomy 55 per cent was excreted by the remaining left kidney in the first hour and 22 per cent the second, giving a total of 77 per cent, a very high output.

These comparisons become more evident in a tabulation.

Before Operation			After Operation	
Case No.	Time of appearance of drug	Total elimination of both kidneys in 1 hour	Time of appearance of drug	Elimination of remaining kidney in 1 hour
K 5	9 min.	40%	9 min.	70%
K 7	5 min.	41%	5 min.	50%
K 10	14 min.	15%	8 min.	25%
K 11	8 min.	35%	6 min.	49%
K 20	10½ min.	40%	12 min.	55%

It is unnecessary to cite further instances, but in every case it has held true that after nephrectomy the remaining kidney has eliminated phthalein in greater amount in a given time after its appearance in the urine, than both organs excreted before operation. The presence in the body of the diseased kidney seems to act as a handicap on the healthy organ; but with this inhibition removed, the remaining kidney shows great aptitude for increased work. A part of this inhibitory effect may be due to the irritation

caused by the presence of the ureter catheters. This point will be discussed later.

It has been said that one of the requisites of an ideal functional test would be its ability to indicate the possession of reserve power on the part of a kidney to do additional work when a sudden strain was thrown on it. Although it seems absurd to expect any functional test to give any such information, still if we are justified in drawing any conclusion from these postoperative tests, this much at least seems true—that in any case of unilateral kidney disease, if the time of appearance and amount of elimination of phthalein from the more healthy side are within normal limits, that kidney may be relied on to take up the work of the body successfully in the event of the removal of the diseased organ, and, furthermore, it may even be expected to do better than before.

(3), Comparison of Tests Showing the Relative Function of Each Kidney, and the Total Function of Both Kidneys: Keyes⁴ has called attention to the fact that the presence of the catheters in the ureters seems to cause a certain amount of inhibition of drug excretion, and while a correct idea of the relative amount of work which is being done by each kidney may be obtained from a functional test done in conjunction with ureteral catheterization, yet an idea of the total work of both kidneys is better secured by taking the total drug excretion of both kidneys from the bladder urine at a subsequent test. We have found this to be true in the cases in which we have followed this routine. Naturally in any case where a supposedly healthy kidney shows a normal time of appearance and output of phthalein in a given time, in connection with ureteral catheterization for comparative study of both sides, no further tests are necessary. But in cases where, although the healthy side is doing a *relatively* much greater amount of work than the diseased side, still the *absolute* amount of work it performs is low, the truth of Keyes' statement is apparent, as a subsequent "total" test will often demonstrate.

To illustrate, Case K 5, tuberculosis of the left kidney with calculi, showed an elimination of 40 per cent of phthalein on the right and a trace on the left in one hour, practically a total of 40 per cent for both kidneys with the ureter catheters in position. The drug appeared in nine minutes after injection. The following day, estimating the drug from the bladder urine for one hour

after its appearance, 60 per cent was eliminated by both sides, and it appeared in six minutes. In other words, it took the drug only two-thirds as long to appear, and one-half as much again was eliminated when the ureter catheters were not employed. This would seem to prove an inhibitory influence of the ureter catheter, although allowance must be made for variations in conditions from day to day in any patient.

Another instance, Case K 10, left renal calculi, showed an excretion of 15 per cent of drug on the right side and but a trace on the left. One or two days later, when the drug was estimated from the bladder urine 31 per cent of drug was excreted by both sides in the first hour, an amount twice as great as that secured with the ureteral catheterization. The first test showed that relatively the right side was doing all the work, but it failed to show the absolute amount of work of which that kidney was capable.

These cases and others are shown in the following table. Cases K 25 and K 28 showed practically equal outputs for both tests.

Separated Test			Total Test	
Caso No.	Time of appearance	Total drug eliminated by ureteral catheters	Time of appearance	Total drug from bladder urine
K 5	9 min.	40%	6 min.	60%
K 10	14 min.	15%	9 min.	31%
K 11	8 min.	33%	*21 min.	40%
K 13	5½ min.	25%	9 min.	48%
K 25	3 min.	38%	10 min.	36%
	(intravenous)		(intramuscular)	
K 28	10 min.	21%	10 min.	20%
K 29	8 min.	5%	10 min.	39%
K 31	9 min.	27%	5 min.	50%

*Probably reflex anuria; no secretion of urine during that period.

(4), Miscellaneous Cases: An interesting use of phthalein was demonstrated in Case K 33, who was brought to the hospital in an extremely low condition, as a night emergency with a diagnosis of suppurative cholecystitis. At operation the mass which had been felt in the gall-bladder region was discovered to be an abscess of the kidney with a huge calculus. As the surgeon had no data as to the efficiency of the other kidney, the abscess was drained by nephrotomy through the flank and the calculus removed. Some days later a phthalein test was done from the bladder urine to represent the elimination of the healthy kidney, as ureteral catheterization of the right side showed no secretion. A

normal amount of drug was excreted from the healthy side, and a subsequent nephrectomy resulted in rapid recovery.

From our use of the drug in surgical kidney cases, we feel justified in drawing the following conclusions:

1. *In cases of bilateral or unilateral kidney disease, the relative amount of work of which each kidney is capable is accurately shown by a comparison of the elimination of phthalein from each side, provided the urines can be obtained separately. Damage to renal tissue is evidenced by a delay in time of appearance and diminution in elimination of the drug on the side where the lesion exists.*

2. *The absolute amount of work which the two kidneys can perform in any case is best demonstrated by estimating the elimination of the drug from the bladder urine, owing to the inhibitory effect produced in the "separated" test by the presence of the ureter catheters.*

3. *In no case in which a satisfactory amount of drug was eliminated by one kidney, did bad results follow the chosen operation on the diseased side.*

4. *Postoperative tests done on the remaining kidney after a nephrectomy, showed in every instance an increased elimination of drug over that shown before operation.*

The Value of Functional Tests: Functional tests of the kidney as a class have been successively introduced during the past thirty years. Each has been more or less enthusiastically greeted; each has enjoyed a certain vogue, while many, at present, have been practically discarded owing to various deficiencies they presented. One of the chief criticisms against some of these tests has been that dependable conclusions could not be drawn from the amount of work the kidney showed itself capable of doing in eliminating a foreign substance under more or less artificial conditions. This criticism would carry more weight if it were not true that some of the detractors of this sort of work have been men whose experience with it has been too limited to make them competent judges. More often, perhaps, bad results which have followed a blind dependence on the findings of a functional test with disregard of all other sources of information, have caused men to lose confidence in these tests as a class.

No functional test has yet been brought forward which will give absolute information in every case; no test yet proposed justifies the investigator in relying on its findings alone and neglect-

ing to avail himself of all other means of clinical and laboratory diagnosis appropriate to the case. We remember some years ago when many surgeons would time the removal of an appendix by the degree of accompanying leucocytosis. Today no one places such reliance on a single symptom, and to put equal dependence on the result of a functional test alone will inevitably lead to disappointing results.

The greatest value will be secured from a functional test by one who correlates the results of the test with all other clinical findings, and gives each source of information its due weight in making his decision. The worker who approaches the question of functional tests with this attitude will make the fewest mistakes and will prove the fairest critic of the test.

Value of the Phenolsulphonephthalein Test: In view of a considerable experience in the past with other renal functional tests, we consider the phenolsulphonephthalein test is the most valuable means of estimating kidney functions that has yet been introduced, for the following reasons:

1. The rapid appearance of the drug in the urine after administration; in normal cases in from three to five minutes if given intravenously, and in from five to twelve minutes if given intramuscularly.

2. The complete elimination of the drug by the kidney in a short time. It is only necessary to collect the urine after the appearance of the drug for two periods of one-half hour after intravenous administration, and for two periods of one hour after it is given intramuscularly. All other drugs yet introduced for estimating kidney function appear more slowly and require longer time for elimination.

3. The simplicity of technique of the test. The color of the drug is well adapted for exact colorimetric estimation.

4. The accurate indication of renal power which phthalein gives in cases of prostatic obstruction as an aid in deciding the operability of a case. By successive tests in these patients the surgeon can tell if the preliminary treatment is increasing the functional power of the kidneys, and he thus can select a time when operation would promise the best results. He will equally be warned against bad results.

5. The accurate demonstration of the relative efficiency of each kidney which can be secured in surgical kidney cases by

comparison of the phthalein elimination of the two sides with the aid of ureteral catheterization.

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TABLE NO. 1

Normal Kidney Cases—Controls

Dose of drug, 6 mgm in each case

				1st Hour		
Case No.	Time appearance drug	Reaction urine	Micros. findings	Amt. urine collected	Specific Gravity	Amt. drug excreted
1	6 min	Acid		150 cc	1022	35%
2	11 min	Acid	Normal	150 cc	1018	41%
3	12 min	Acid	Normal	40 cc	1024	26%
4	9½ min	Acid		200 cc	1008	28%
5	13 min	Acid		75 cc	1014	20%
6	5 min	Acid		150 cc	1010	21%
7	13 min	Acid	Normal	50 cc	1009	23%
8	8 min	Acid		100 cc	1034	22%
9	8 min	Acid	Normal	150 cc	1012	66%
10	6½ min	Acid	Normal	125 cc	1010	37%
11	13 min	Acid	Normal	50 cc	1018	33%
12	6 min	Acid	Normal	150 cc	1013	49%
13	9 min	Acid	Normal	150 cc	1006	23%
14	10 min	Acid	Normal	150 cc	1005	24½%
15	12 min	Acid	Normal	75 cc	1018	60%
16	6 min	Acid	Normal	200 cc	1012	22%
17	9 min	Acid	Normal	100 cc	1014	55%
18	11 min	Acid	Normal	180 cc	1014	40%
19	10 min	Acid	Normal	100 cc	1014	40%
20	8 min	Acid	Normal	400 cc	1006	83%
21	8 min	Acid	Normal	100 cc	1010	30%
22	5 min	Acid		300 cc		42%
23	7 min	Acid	Normal	175 cc	1004	25%
24	6 min	Acid	Normal	200 cc	1004	37%

1 Hour		Estimation for 2 Hours	Remarks
Specific Gravity	Amt. Drug Excreted		
1021	18%	53%	Diabetes
1004	9%	50%	Tuberculosis Testicle
1022	35%	61%	Osteomyelitis Tibia
1006	21%	49%	Papilloma Bladder
1012	18%	38%	Lues—Tabes
1012	18%	39%	Lues—Tertiary
1007	18%	41%	Exophthalmic Goitre
1038	14%	36%	Diabetes
1009	24%	90%	Fracture Tibia
1010	28%	65%	
1002	15%	48%	
1013	42%	82%	
1006	34%	57%	
1010	21%	45%	
1008	25%	85%	
1012	12%	34%	
1012	28%	83%	
1016	45%	85%	Fracture Femur
1012	35%	75%	Infected Arm
1012	10%	93%	Hernia
1012	20%	50%	
	20%	62%	Cystitis
1005	18%	43%	Aneurysm Aorta
1004	29%	66%	Gastritis

2nd Hour			Estimation for 2 Hours	Remarks
Amt. urine collected	Specific Gravity	Amt. Drug Excreted		
125 cc	1021	18%	53%	Diabetes
150 cc	1004	9%	50%	Tuberculosis Testicle
50 cc	1022	35%	61%	Osteomyelitis Tibia
100 cc	1006	21%	49%	Papilloma Bladder
50 cc	1012	18%	38%	Lues—Tabes
100 cc	1012	18%	39%	Lues—Tertiary
200 cc	1007	18%	41%	Exophthalmic Goitre
100 cc	1038	14%	36%	Diabetes
140 cc	1009	24%	90%	Fracture Tibia
125 cc	1010	28%	65%	
70 cc	1002	15%	48%	
185 cc	1013	42%	82%	
175 cc	1006	34%	57%	
160 cc	1010	21%	45%	
175 cc	1008	25%	85%	
125 cc	1012	12%	34%	
150 cc	1012	28%	83%	
190 cc	1016	45%	85%	Fracture Femur
125 cc	1012	35%	75%	Infected Arm
75 cc	1012	10%	93%	Hernia
150 cc	1012	20%	50%	
150 cc		20%	62%	Cystitis
190 cc	1005	18%	43%	Aneurysm Aorta
200 cc	1004	29%	66%	Gastritis

TABLE NO. 2

Prostatic Hypertrophy and Bladder Obstruction

6 mgm Phthalein given in each case

						1st Hour	
Case No.	Diagnosis	General Condition	Time of appearance of drug	Reaction urine	Microscopical findings	Amt. urine collected	Sp. Gr.
P 1	Cancer Prostate	poor	15 min	acid	blood, pus	100 cc	
P 2	Hypertrophy Prostate	fair	20 min	acid	leucocytes	50 cc	
P 2	(same 6 days later)	better, residual 180 cc	14 min	acid	leucocytes	175 cc	1009
P 3	Hypertrophy Prostate	good	32 min	acid		100 cc	1008
P 4	Cancer Prostate	fair	12 min	acid		125 cc	1012
P 5	Cancer Prostate	good	11 min	acid		175 cc	1008
P 6	Small Fibrous Prostate	good	11 min	alk.	pus	175 cc	1007
P 7	Hypertrophy Prostate	good	8 min	acid		200 cc	1010
P 7	(same 1 week later)	good	9 min	acid		100 cc	
P 8	Hypertrophy Prostate	poor—drowsy	2 hours	alk.	blood, pus	125 cc	1010
P 9	Hypertrophy Prostate	poor	23 min	acid	blood, pus, casts	40 cc	
P 10	Hypertrophy Prostate	good	15 min	alk.	pus	175 cc	
P 10	(same after 3 mos)	good	8 min	acid	some leucocytes	75 cc	
P 11	Hypertrophy Prostate with vesical calculus	good	18 min	acid	pus	190 cc	
P 12	Hypertrophy Prostate	fair, residual 3000 cc	uncertain	acid	much blood	175 cc	1007
P 12	Same after 7 days	better	20 min	acid	less blood	120 cc	
P 12	Same after 4 days	not as well	25 min	alk.	same	150 cc	
P 12	Same after 2 weeks	better	24 min	alk.	less sediment	100 cc	
P 12	Same after 3 weeks	same	33 min	acid	not done	100 cc	1008
P 12	Same after 2 mos	good	25 min	acid	not done	160 cc	1012
P 13	Hypertrophy Prostate	good	1 hr 15 m	acid	blood, pus	175 cc	1014
P 14	Papilloma bladder	good	not est.	acid	much blood, few leucocytes, no casts	50 cc	not taken
P 15	Hypertrophy Prostate	fair	24 min	acid		300 cc	1006
P 16	Hypertrophy Prostate	good	12 min	acid	pus, epithelium	140 cc	1006
P 17	Hypertrophy Prostate	good	15 min (intravenous)	acid	pus, epithelium, blood	25 cc	not taken
	Hypertrophy Prostate	good	4 min (intravenous)	acid	pus, epithelium	50 cc	1021
P 18	Same after 3 days	good	18 min (intramuscular)	acid	pus, epithelium	120 cc	1012
P 18	Same after 2 weeks	good	11 min (intramuscular)	acid	pus, epithelium	100 cc	1022
P 19	Hypertrophy	good	18 min	acid	pus, blood epithelium	150 cc	1012
P 19	Hypertrophy	good	18 min	acid	pus, blood, epithelium	150 cc	1012

2nd Hour				TOTAL DRUG	REMARKS
Amt. Drug Excreted	Amt. urine collected	Sp. Gr.	Amt. drug excreted		
21%	60 cc		5%	26%	Inoperable
12%	50 cc		10%	22%	
10%	350 cc	1009	37%	47%	Prostatectomy, recovery
5%	125 cc	1010	10%	15%	No operation
25%	75 cc	1010	24%	49%	Inoperable
8%	150 cc	1006	9%	17%	Inoperable
23%	155 cc	1006	10%	23%	Symptoms relieved by stretching neck of bladder with sounds.
17%	210 cc	1010	8%	25%	Prostatectomy
8%	100 cc		16%	24%	Recovery
2%	140 cc	1010	trace	2% plus	No operation, death in 3 days broncho-pneumonia
5%	80 cc		6%	11%	No operation, death in 3 days
38%	200 cc		10%	48%	Prostatectomy. Recovery.
35%	75 cc		12%	47%	Post-operative test.
26%	100 cc		15%	41%	Prostatectomy, death 7 days Broncho-pneumonia
	150 cc	1010			Estimation impossible on acct. of so much blood
16%	150 cc		9%	25%	
5%	70 cc		5%	10%	Steady gain over two months
16%	75 cc		14%	30%	Operation refused
14%	150 cc	1009	18%	32%	
22%	100 cc	1012	25%	47%	
12%	190 cc	1014	15%	27%	Bismuth X-ray plate shows obstruction at pylorus (carcinoma) discharged without operation
10%	170 cc	not taken	25%	35%	Operation—recovery.
9%		not taken			
15%	75 cc	1008	21%	36%	No operation. 1000 cc, residual urine, myocarditis
35%	20 cc	not taken	12%	47%	Refused operation
					Operation—recovery
13%	25 cc	1021	9%	22%	Diabetes; sugar 4%
10%	130 cc	1012	11%	21%	
20%	105 cc	1020	22%	42%	
15%	170 cc	1012	18%	33%	
15%	170 cc	1012	18%	33%	Operation; death in 1 week, Broncho Pneumonia

TABLE NO. 3 A

Surgical Kidney Cases **URETERAL CATHETERIZATION SERIES** **6 mgm phthalein given each patient**

Case No.	Diagnosis	General Condition	Comparison of separated urines, collected 1 hour.				
			Color	Reaction	Sp. Gr.	Amt. urine collected	Time appearance
K 1	Bilateral renal calculi	poor	(R. turbid (L. smoky	R. acid L. acid	R. 1008 L. 1009	R. 80 cc L. 130 cc	R. 80 min L. 60 min
K 2	Lues	good	(R. amber (" clear (L. " "	R. acid L. acid	R. 1018 L. 1018	R. 25 cc L. 20 cc	R. 7 min L. 9 min
K 3		fair	(R. amber (L. amber	R. acid L. acid		R. 25 cc L. 25 cc	R. 10 min L. 10 min
K 4		good	(R. amber (L. amber	R. acid L. acid	R. 1012 L. 1019	R. 50 cc L. 75 cc	R. 13 min L. 9 min
K 5	Tuberculosis left kidney with calculi	fair	(R. amber (" clear (L. pale (" cloudy	R. alk. L. acid	R. 1012 L. not taken	R. 60 cc L. 6 cc	R. 9 min L. unknown
K 6	Calculi right kidney	good	(R. light (L. amber	R. alk. L. acid	R. not taken L. 1018	R. 3 cc L. 125 cc	R. 9½ min L. 5½ min
K 7	Calculi right kidney	good	(R. turbid (L. cl. amb.	R. alk. L. acid	R. not taken L. 1010	R. 25 cc L. 160 cc	R. 16 min L. 5 min
K 8	Hypernephroma right kidney	good	(R. bloody (L. clear	R. acid L. acid		R. 40 cc L. 75 cc	R. unknown L. 5 min
K 9	Hypernephroma right kidney	fair	(R. smoky (L. cloudy	R. acid L. acid		R. 10 cc L. 20 cc	R. 23 min L. 17 min
K 10	Cystic kidney left, with calculi	good	(R. clear (L. cloudy	R. acid L. alk.	R. 1014 L. 1008	R. 75 cc L. 50 cc	R. 14 min L. 16 min
K 11	Cystic kidney right with calculus	good	(R. (L. pale turb.	R. L. acid		R. L. 30 cc	R. L. 8 min
K 12	Tumor left kidney	good	(R. amber (L. smoky	R. acid L. acid		R. 125 cc L. 150 cc	R. 6½ min L. 12 min
K 13	Infarct right kidney	good	(R. clear (L. clear	R. alk. L. acid	R. 1010 L. 1005	R. 40 cc L. 100 cc	R. 9 min L. 5½ min
K 20	Hypernephroma right kidney	good	(R. smoky (L. amber	R. acid L. acid	R. not taken L. not taken	R. 10 cc L. 40 cc	R. 10½ min L. 10½ min
K 21	Calculi left kidney and ureter	good	(R. amber (L. amber	R. acid L. acid	R. not taken L. not taken	R. 15 cc L. 15 cc	R. 4½ min L. 10 min
K 22	Essential Hematuria	good	(R. bloody (L. amber	R. acid L. acid	R. 1014 L. 1014	R. 200 cc L. 200 cc	R. 5 min L. 5 min
K 23	Calculi right kidney and ureter	good	(R. (L. amber	R. L. acid	R. L. 1012	R. L. 100 cc	R. L. 6 min
K 24	Bilateral pyelitis colon bacillus	fair	(R. smoky (L. amber	R. acid L. acid	R. not taken L. not taken	R. 20 cc L. 20 cc	R. 4 min L. 6 min
K 25	Tuberculosis left kidney	good	(R. amber (L.	R. acid L.	R. not taken L.	R. 10 cc	R. 3 min L.
K 26	Hypernephroma right kidney	good	(R. no secretion (L. amber	not obtained L. acid	from right ureter L. 1014	R. L. 55 cc	R. L. 3 min
K 27	Renal Colic, cause undetermined	good	(R. pale, cloudy (L. amber sl smoky	R. acid L. acid	R. not taken L. not taken	R. 10 cc L. 12 cc	R. 15 min L. 10 min
K 28	Tuberculosis Kidney	good	(R. Light purulent (L. amber, clear	R. acid L. acid	R. not taken L. not taken	R. 10 cc L. 15 cc	R. 30 min L. 10 min
K 29	Pyonephrosis left kidney	good	(R. amber (L. amber	R. acid L. acid	R. not taken L. not taken	R. 1 cc L. 3 cc	R. 10 min L. 8 min
K 30	Hydronephrosis right kidney	good	(R. pale straw (L. amber	R. acid L. acid	R. 1008 L. 1020	R. 50 cc L. 10 cc	R. 7 min L. 5 min
K 31	Cystitis. Cause undetermined	good	(R. amber sl. cloudy (L. amber cloudy	R. acid L. acid	R. L.	R. 5 cc L. 10 cc	R. 9 min L. 10 min
K 32	Calculus left kidney	good	(R. amber (L. amber	R. acid L. acid	R. not taken L. not taken	R. 8 cc L. 6 cc	R. 4 min L. 17 min

Chem. and Micros. analysis	Amt. Drug Excreted 1 hour	Remarks
R. Pus, blood, casts, oxalate crystals. L. Same, but fewer in amount	R. trace L. 5%	(Right nephrectomy, death in 3 weeks abscess left kidney)
R. Few leucocytes L. Few leucocytes	R. 21% L. 16%	(All symptoms disappeared under specific treatment)
Both sides normal	R. 25% L. 23%	(No kidney lesion)
R. Leucocytes, renal cells L. Same	R. 25% L. 50%	No diagnosis made Recovery without operation
R. Normal L. Pus, renal cells, crystals	R. 40% L. trace	(Nephrectomy, left, recovery (Compare K 5 Table 3 B for other tests)
R. Not done L. Trace albumen	R. trace L. 26%	(Right nephrectomy, removal of calculi)
	R. 2% L. 39%	(Nephrectomy, right, recovery. Post- operative test, drug appeared in 5 min. 1st hr. 50%; 2nd hr. 30%; total 80%)
R. Pus, blood L. Normal	R. 18% L. 38%	(Nephrectomy, right—recovery)
	R. 8% L. 12%	(Exploratory incision—inoperable)
R. Normal L. Pus, casts, phosphates	R. 15% L. trace	(Nephrectomy, left—recovery)
R. No urine obtained from right side L. Few leucocytes	R. none L. 35%	(Nephrectomy, right; right ureter en- tirely blocked by calculus in pelvis pro- jecting into ureter)
	R. 10% L. 8%	(See following table for further tests)
	R. 4% L. 21%	(See following table for further tests Nephrectomy recovery)
R. Tr. albumen, blood, pus L. Normal	R. 10% L. 30%	
R. Normal L. Normal; leucocytes, epithelium	R. 18% L. 2½%	Urine collected 15 min. only from ureter catheters, intravenous phthalein inject'n
R. Tr. albumen, blood L. Normal	R. 15% L. 35%	Nephrotomy—recovery
R. L.	R. L. 30%	Nephrotomy—recovery Horse-shoe kidney found at operation
R. Tr. albumen, much blood, pus, hyalin casts L. Tr. albumen, much blood, pus, hyalin casts	R. 14% L. 14%	Urine collected by ureter catheter for 25 min after appearance on right side
R. Normal L.	R. 38% L.	Urine collected ½ hour from right ureter —left ureter could not be catheterized— urine collected from bladder showed no drug in 33 min. Nephrectomy—Rec'vy
R. L.	R. L. 40%	Collected 30 min from ureter catheter
R. Few leucocytes L. Blood, leucocytes	R. 2% L. 4½%	Hematuria on both sides (traumatic) made time of appearance of drug hard to estimate, above amount of drug ap- peared in 35 min. after administration
R. Albumen, much pus, many tbc. bacilli L. Normal; few epithelial cells	R. trace L. 21%	12% from left in first 15 min 9% from left in second 15 min Right appeared 30 min, trace in 13 min after appearance. Nephrectomy rec'v'y
R. Epithelium only L. Pus; no casts or blood	R. trace L. 5%	Nephrectomy leit, recovery Collected 15 min from each ureter
R. Many renal cells, many leucocytes, occasional red cell L. Considerable blood, many epithe- lial cells	R. 5% L. 20%	Collected 15 min after appearance of drug. No tubercle bacilli in sediment
R. Few leucocytes and epithelia L. Same as right	R. 10% L. 17%	Compare total test of Feb. 5th. Table 3 B
R. Normal L. Trace albumen, few white blood, few red blood cells	R. 13% L. trace	13% from right side in 15 min (intravenous injection) Nephrectomy, left, recovery

TABLE NO. 3 B

Surgical Kidney Cases

ESTIMATION OF TOTAL FUNCTION WITHOUT URETERAL CATHETERIZATION
Dose 6 mgm Phthalein

Case No.	Diagnosis	General Condition	Time Appearance	Reaction	Chem. and Mic. Findings	1st hour	
						Amt. Collected	Sp. Gr.
K 5	Tuberculosis Left kidney with calculi	good	6 min.	acid		200 cc	1008
K 5	Same	good	9 min.	acid		300 cc	1014
K 7	Calculi right kidney	good	5 min.	acid	normal	120 cc	1016
K 9	Hypernephroma rt right kidney	fair	15 min	acid	much blood	150 cc	1016
K 9	(4 days later)	fair	23 min.	acid	less blood	50 cc	1008
K 10	Cystic kidney with calculi	good	9 min	acid	pus, casts	450 cc	1004
K 10	(2 weeks later)	good	8 min	acid	normal	75 cc	1008
K 11	Calculus, right kidney	good	6 min	acid	normal	500 cc	1004
K 12	Tumor kidney	poor	17 min	acid	blood, casts	60 cc	
K 13	Infarct right kidney	good	9 min	acid		75 cc	1014
K 13	5-22-11	poor	7 min	acid		175 cc	1008
K 14	Hypernephroma, lft 5-92-11	good	8 min	acid	blood	150 cc	
K 14	(9-19-11)	fair	9 min	acid	blood	200 cc	1009
K 15	Tbc. kidney	fair	7½ min	acid	Tbc. bacilli in urine	200 cc	1012
K 16	Tbc. kidney, rt	fair	6 min	alk.		150 cc	
K 17	Tbc. kidney, lft	fair	11 min	acid	tbc. bacilli in urine	75 cc	
K 18	Infarct, rt kidney	poor	13 min	acid	pus	20 cc	1009
K 19	Pyonephrosis, 2-14-11	poor	20 min	acid	5% abl., pus, blood	75 cc	1018
K 19	Same, 2-23-11	poor	44 min	acid	same	90 cc	1012
K 19	Same, 3-8-11	poor	15 min	acid	same	100 cc	1012
K 20	Hypernephroma right kidney	good	12 min	acid	normal	170 cc	1012
K 21	Nephrectomy for calculi, left kidney	good	2¾ min	acid	normal	500 cc	1006
K 25	Tuberculosis kidney, left	good	10 min	acid		90 cc	1012
K 28	Tuberculosis, right kidney	good	10 min	acid		150 cc	1010
K 29	Pyonephrosis, left kidney	fair	10 min	acid	pus, epithelium, no bolod, no casts	320 cc	1012
K 31	Cystitis	good	5 min	acid	much pus, epithelium	400 cc	1008
K 33	Pyonephrosis with Calculi right,	good	3 min	acid	normal	160 cc	1014

Amt. Drug	2nd Hour			Total drug 2 hours	REMARKS
	Amt. collected	Sp. gr.	Amt. Drug		
60%	not taken	not taken		60% 1 hr.	Compare with "separated test" Dec. 15th
70%	140 cc	1014	5%	75%	Post-operative test—3 weeks after nephrectomy
50%	110 cc	1016	30%	80%	2 weeks after nephrectomy—compare same case, Table III A
19%	125 cc	1014	25%	44%	Compare Table III A, K-9
22%	75 cc	1008	18%	40%	
31%	175 cc	1006	25%	56%	Compare table III A, K-10
25%	60 cc	1008	24%	49%	Two weeks after nephrectomy
49%	410 cc	1004	16%	65%	Ten days after nephrectomy
25%	40 cc		12%	37%	Discharged without operation
48%	30 cc	1014	24%	72%	Compare K 13, Table III A
8%	200 cc	1010	2%	10%	
8%	175 cc		14%	22%	Exploration, inoperable,
17%	190 cc	1010	11%	28%	Hypernephroma
15%	100 cc	1010	15%	30%	Impossible to catheterize ureters
29%	225 cc		8%	37%	Impossible to catheterize ureters
17%	75 cc		15%	32%	No operation
5%	100 cc	1010	20%	25%	Nephrectomy, recovery
25%	60 cc	1016	23%	48%	No operation
19%	60 cc	1014	20%	39%	No operation
14%	75 cc	1010	13%	27%	Impossible to catheterize ureters
55%	170 cc	1012	22%	77%	10 days after nephrectomy (from left kidney) Compare with pre-operative test
45%	140 cc	1008	9%	54%	Post-operative test, compare with pre-oper- ative test. Table 3 A
36%	80 cc	1012	18%	54%	Compare same case Table 3 A
20%				20%	Total test—compare with test of Feb. 15th (separated)
39%	170 cc	1012	18%	57%	Compare with "separated" test
50%	200 cc	1008	40%	90%	Total test—compare with ureteral catheter- ization test
42%	130 cc	1014	5%	47%	Urine from left kidney only. Urine from right drains through nephrotomy wound

Sanitary Condition of the Cleveland Water Supply*

By DANIEL D. JACKSON, Sanitary Expert, New York City.

Summary

1. Since the installation of the new four-mile intake, the water supply of Cleveland has been in a satisfactory sanitary condition at all periods of the year, with the exception of the short intervals during which the annual breaking up of the ice has occurred. The sewage laden ice from the river and harbor has on several occasions infected the supply at that time, especially in 1910, when the ice movements were oscillating and protracted.

2. Flood flows in the Cuyahoga River, high southeast winds and seiches or lake oscillations all have a tendency to carry the sewage mud out into the lake, but neither of these, nor all working together are active enough to carry infectious sewage matter beyond a two-mile limit, and cannot under present conditions, at any time materially affect the water at the new four-mile intake.

3. The chlorinating plant which was installed by the Division of Water Works last September, under the recommendation of the Department of Public Health, gave, at times, very unsatisfactory results on account of taste and odor in the water, due to the use of unnecessarily large amounts of chlorin. The quantities of chlorin have been cut down, while the sterilizing effect upon the water has been sufficiently active. The efficiency has been demonstrated this year, both by the analytical results and by the fact that while the ice movements in April caused specific typhoid infection in the water supply during three days, yet there was no accompanying rise of typhoid fever in the city.

4. It is not imperative to chlorinate at other periods than during and directly after the ice movement, as under present conditions infection does not occur at other times. In order to insure the use of standard amounts of chlorin when sudden increase or decrease in pumpage takes place, it is recommended that an automatic device be installed which will regulate the flow of hypochlorite solution directly with the flow of water, and that experiments be made with a view of substituting the chemi-

*From the report presented to the City of Cleveland under date of May 25, 1912, published in October, 1912, and covering the presentation of the author before the joint meeting of the Great Lakes International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors, held in Cleveland, October 23 and 24, 1912.

cal solution by compressed chlorin gas made directly from the electrolysis of common salt. This gas is more effective at low temperatures, is readily eliminated from the water by its more rapid reaction; can be easily regulated and is in all respects like treatment with ozone, but more practical of application and much less expensive. The entire installation would cost about \$2,000, and the cost of treatment from forty cents per million gallons downward to approximately twenty-five cents, as liquid chlorin comes more into general use and is made on a larger scale.

5. The water supply of Cleveland is practically colorless and usually free from excessive turbidity. Its hardness is so low that it could not be materially reduced by treatment, and, except for a few days in the year, it is entirely satisfactory from a sanitary standpoint. If a filter plant were installed, it would still be wise to chlorinate at this period.

6. The installation of a filter plant would be effective in Cleveland only in removing the slight turbidity which exists in the supply. The expense of such an installation does not therefore appear to be warranted. If, however, it is desired to filter, in order to remove the occasional turbidity which occurs, due to the stirring up of the lake by westerly winds, a pressure filter plant can be installed, using alum as a coagulant and filtering at high rates without additional pumping. Such a plant could be built in units at either or both pumping stations at a cost of about \$600,000, for a one hundred million gallon capacity. The total area required would be less than one acre. This installation would remove the turbidity and protect the water from a sanitary standpoint, and in case further quantities of water or greater bacterial efficiency should be required in the future, it could be obtained by adding more units to the same plant. Filters of any type would not supplant the use of chlorin during the spring ice movements.

7. The moneys to be expended in the Water Works Division could be employed to much greater advantage by building the proposed extension of the old intake to a point 16,000 feet northwesterly from the old west-side crib, the water from which, even after filtration and chlorination, would not be equal to that which would be obtained by the proposed extension. It is strongly advised that this extension be begun at once, in order to provide a proper supply for the future growth of the city, and to maintain

a duplicate system which would insure against any serious accident and also admit of the cleaning and repairing of all tunnel lines.

8. While the usual courses of steamers and other vessels are at least a mile from the crib, it is recommended that for entire safety from pollution from such sources that the government be asked to allow of the establishment of buoys one-half mile from the crib inside of which vessels shall not be allowed to pass.

For the further sanitary protection at the intake crib, it is recommended that absolutely all liquid and solid matter, including garbage and wash water, be evaporated and incinerated and the ash be removed in covered garbage cans and that no pigeons or other animals be allowed to be kept on the crib.

9. The Cuyahoga River and much of the water along the lake shore is grossly polluted with raw sewage and manufacturing wastes, and the proposed new systems of sewage disposal would materially relieve this condition, decrease or possibly remove the menace to the water supply during the spring ice movements and add comfort and safety from infection at the bathing beaches. It would also save some of the money which is now spent in dredging the river and harbor, as a considerable portion of the matter now removed is sewage sludge.

10. The average typhoid fever death rate of Cleveland since the installation of the new water intake has been 16.3 per 100,000 population. Of this it is estimated that about 10 per cent was due to water, 30 per cent to unsanitary conditions and transmission by flies, 10 per cent to cases contracted out of the city and 5 per cent to milk and other raw foods. The remaining estimated 45 per cent were contact cases and could therefore be apportioned as indirectly caused by the other sources of infection. It is possible by active sanitary work on the screening of all privy vaults, as well as publicly exposed food in stores and restaurants; the screening of all reported cases; and the cleaning up or liming of all exposed fecal matter in alleys, open lots or elsewhere, that the typhoid rate could be reduced to less than ten per 100,000. A further reduction could be made by the removal of improperly cared for tenement cases to hospitals where transmission by contact would be avoided.

The Water Supply of Cleveland

The entire water supply of Cleveland is derived from an intake crib situated four miles out in Lake Erie in a northwest-

erly direction from the entrance to Cleveland Harbor. The water passes through openings in the steel sides of the crib at depths of from ten to twenty-eight feet below the lake surface, the lower openings being about twenty-two feet from the bottom of the lake. From the central well of the crib, the water takes a downward course to the nine-foot tunnel below, through which it travels 26,000 feet shoreward to Kirtland Street Pumping Station. Based on a velocity of flow of four feet per second, the estimated capacity of this tunnel is 175,000,000 gallons per day. At times during the hot weather as high as 107,000,000 gallons per day have been pumped. Much the greater portion of the supply goes directly through the mains to the consumer, the excess going to Fairmount Low Service Reservoir, three miles southeast of Kirtland Station, from which the low service pressure is regulated. This reservoir has an elevation of 170 feet, and a capacity of 80,000,000 gallons.

From the Fairmount Pumping Station water is pumped to Kinsman High Service Reservoir and to a standpipe, which supply respectively the first and second high service sections of the city. Kinsman Reservoir is at an elevation of 324 feet and has a capacity of 37,000,000 gallons. The standpipe is 571 feet above city datum and holds 200,000 gallons.

History of the Development of the Water Supply

The Cleveland Water Works were begun in August, 1854, the first water being used in September, 1856. The water was then obtained from a point in Lake Erie 300 feet from the shore and 400 feet west of the western terminus of the Old River Bed.

The intake was four feet below the surface and was connected with a fifty-inch boiler plate pipe laid in twelve feet of water. The water was pumped to a standpipe and to a reservoir west of the Cuyahoga River, and from these supplied to the city.

In February, 1866, it was found that owing to the formation of an ice bank along the water front, the flow of the Cuyahoga River had been diverted westward toward the intake, causing pollution and a strong odor of petroleum in the water. In December a similar odor of petroleum was noted, due to a northeasterly gale and ice floes. In 1867 and 1868, petroleum was noted at times in the water, and in 1869 the character of the water furnished was considered undesirable for domestic purposes, and work on a new intake was begun. The new construction con-

sisted of a tunnel five feet in diameter and extended one and one-quarter miles into the lake. The work on this tunnel was completed and the water turned into the city mains in March, 1874. During the cold winter of 1875 the water had an insipid taste, said to be due to the lack of oxygen, as the ice was very thick. It is probable that contamination existed at this time. In March, 1877, the water of the new intake had a strong taste of petroleum, and it was evident that the objectionable water from the river was reaching the crib. In March and December of 1881, the water was noticeably contaminated from the river. About this time a branch aqueduct was being built to the crib. In 1885, the Fairmount Distributing Reservoir and the High Service Reservoir were begun and the following year the High Service Pumping Station was commenced.

In 1886 a new branch tunnel was proposed. Work was begun on this new West Side tunnel in 1888 and finished in 1891. Shortly after, in 1892, evidences of pollution in the water from the tunnel necessitated action on further tunnel extension, and the new East Side tunnel, which was finally started in 1896, was the result. The report of 1902 speaks of increasing contamination. The new East Side tunnel was finally completed in 1904, and since that time the entire supply has come from that source. In the meantime, the year 1903 was marked by a severe typhoid fever epidemic, which had its greatest height in March, while the first part of 1904 was also marked by a similar epidemic, having its height in February.

The new pumps at the Kirtland Street Pumping Station were started on February 10th, 1904, and between that date and April 7th water was drawn from both old and new intakes. After April 7th the old intake was abandoned, and since then all water has been drawn from the new East Side crib, four miles from the shore.

In the early part of the year 1910 a noticeable rise in typhoid fever occurred, which was considered to be due to water supply, and again, in 1911, a slight rise occurred at about the same period of the year. This started an agitation for filtration, as the greater portion of the typhoid occurring in the city throughout the year was thought to be due to water supply.

In the fall of 1911 an appropriation of \$1,500,000 was proposed for a filter plant. The incoming administration of 1912, desiring to determine the feasibility of such an expenditure, or-

dered the present investigation of the sources of typhoid fever in Cleveland.

In the meantime the Water Works Division, by recommendation of the Board of Health, installed a chlorinating plant for the sterilization of the water supply.

The Sewerage of Cleveland

The sewerage of Cleveland was constructed principally on the combined plan. The discharge was connected by numerous outlets into the Cuyahoga River and into the harbor and lake. Since 1896 there has been gradually installed a system of intercepting sewers which empty the dry weather flow into the lake at Collinwood, seven and a half miles east of the mouth of the Cuyahoga River, and one-half mile out into the lake.

At the present time 52 per cent of the city's sewage is discharged at this point. At times of heavy rain, the storm flow passes out through fourteen outlets between the river and the main outlet.

A small intercepting sewer serves the western portion of the city, having an outlet about one mile west of the mouth of the Cuyahoga River.

A large portion of the sewage of the city is still discharged into the Cuyahoga River at twenty-one combined sewer outlets and one outlet into Big Creek, a tributary of the Cuyahoga.

The river, which is about eighty miles long and has a watershed of 800 square miles, with a mean discharge of 300 cubic feet per second, has at times a very much smaller discharge, decreasing to 60 or 70 cubic feet per second for months at a time.

For several miles from the mouth of the river it is practically level at the surface and fluctuates up and down with the lake levels, but has sufficient depth to form a part of Cleveland Harbor.

In that portion of the river which is opposite the city, a complete displacement of the water during dry weather only takes place in from two to three weeks' time. At such periods rising lake oscillations may cause the current in the river to set up stream, with a corresponding increase of flow down stream as the lake drops in level.

Forty per cent of the city's sewage is still being discharged into this nearly stagnant body of water. Added to this are large

quantities of industrial wastes from oil refineries, chemical works, breweries, tanneries and slaughter houses.

Opposite the city the river is usually very sluggish, having a velocity, even at times of flood, of only three feet per second. The result of the discharge of this large volume of sewage into the sluggish river is almost immediate deposition of the suspended matter in the sewage and the accumulation of large amounts of sewage sludge at the bottom of the river, which putrefies during the warm weather, giving off quantities of foul gases. Some of this sewage sludge is also deposited in the harbor, and in times of flood and high southeast winds a portion of it is carried for nearly a thousand feet beyond the harbor entrance.

Effect of the Present System of Sewage Disposal Upon the Water Supply

As described in the previous section, the effect of the present system of sewage disposal on the water at the old abandoned intake crib is marked, but under ordinary circumstances no effect is noted on the water at the new intake crib. At that period of the year, however, when the ice breaks up, the accumulated sewage ice from the river and harbor float out by the new crib and for a few days the water may then become contaminated. Such an effect has been noted in two years out of the seven since the new crib has been in use, and was especially marked in April, 1910. When the ice moved out in 1912, specific contamination was found covering a period of three days.

Effect of Proposed Changes in Sewage Disposal

The changes proposed by the city's sewerage expert, Mr. R. Winthrop Pratt, involve the separate treatment of the sewage on the West Side from that on the East Side, and the relief of the present intercepting sewer by carrying the sewage now disposed of in the Cuyahoga River to a point south of the city in the Cuyahoga valley and separately treating it and discharging the treated effluent into the river.

The most economical and efficient methods of treatment in each case will be determined by the experiment station now being built.

Such a general scheme of treatment will eliminate the disposal of raw sewage into the river or into the lake, the overflow from the storm outlets only taking place after the sewers have been thoroughly flushed by the preliminary discharge. Such

overflow would occur only in times of heavy rains and would be very highly diluted; and to that extent equivalent to a treated sewage effluent.

It will be seen that sewage treatment will not only much improve the unpleasant conditions now existing in the river and harbor, but will greatly reduce the infectious matter in the contaminated ice passing toward the water intakes in time of ice movements. This protection will be especially effective if sewage sterilization is resorted to.

The Bathing Beaches

A proper disposal of the sewage of the city will have a very marked effect upon the quality of the water at the bathing beaches within the city limits, all of which were closed during the past year by the Board of Health. Sterilization of the effluents, at least during the bathing period, will render the water safe for bathing purposes.

The closing of all bathing beaches means a great hardship and it seems expedient during the present season to allow the use of Gordon Park Beach and Edgewater Park Beach by shutting off the nearest storm overflows. The other outlets could probably take care of the present storm flow.

Natural Processes of Sewage Purification in Lake Erie

From the results obtained in the examinations of water, sewage and sewage mud, it is estimated that one-half of the sewage now entering the Cuyahoga River is disposed of by dilution, sedimentation and oxidation before reaching the harbor entrance. In the harbor itself most of the sewage is blown eastward and westward by the wind and deposits over a broad area, becoming diluted at a distance of 600 feet in either direction to about one-fourth its original strength, so far as putrescible matter is concerned and one-eighteenth its original bacterial contents.

That portion of the sewage matter which passes through the harbor entrance is again diluted, precipitated and dispersed until, at a distance of a mile and a quarter from shore, only slight evidences of pollution exist, and at two miles from shore the effect of pollution is entirely lost, except in so far as the ice floes may transport sewage direct from the harbor, as elsewhere described.

These effects are brought about by many natural processes, among which may be enumerated: direct dilution, diffusion, dispersion by wind and currents, precipitation, bacterial activity,

oxidation by the oxygen dissolved in the water and by that given off by algae.

If such a degree of purification exists under the present conditions, it will be greatly increased when by sewage treatment the more noxious and dangerous matter is eliminated from the lake. In the consideration of such treatment, two elements appear to be of importance: first, the elimination of suspended matter by fine screening; second, sterilization by chlorin.

The Possible Effect of Other Sources of Pollution than the Cuyahoga River

The flood discharges of the Rocky River enter the lake six or seven miles to the west of the Cuyahoga River and have been discussed as a possible source of danger to the water supply.

Careful observations were made upon this river to determine its course as it enters the lake under varying conditions of the wind. The water under flood conditions is extremely turbid and could be distinguished from the lake water into which it flowed. It was found to disperse eastward or westward from the wind, but not to travel directly out into the lake, even with a strong south wind, without entirely losing its identity within a two-mile limit. The turbid water which reached the intake crib came from the turning over of the lake due to strong westerly winds, and the turbidity was found to be of a fine greyish silt differing from that of the Cuyahoga or Rocky rivers, but corresponding to that found at the bottom of the lake near the intake crib and to the west of it.

The amount of sewage discharged at greater distances than the Rocky River, and the small amounts discharged along the shore at various points within the city limits, need hardly be discussed, as they evidently never create more than local nuisances or local infections of the water. Many of these, particularly those inspected near the mouth of the Rocky River, are a local menace to health on account of exposed excreta and should be replaced by the individual owners, by proper local disposals of septic tanks and subsurface tiles.

Another source of infection which has been considered is that produced by passing steamers during the navigation season. The usual courses of steamers and other vessels are more than a mile from the present intake crib and the proposed crib and very considerable distances from the U. S. Government courses.

While the possibilities of infection from this source are very small, still it would be well to cover this point by asking the Government to allow during the navigation season the placing of buoys one-half mile from the crib, no vessel to be allowed inside of the enclosed area around the crib, except by special permit from the Superintendent of Water Supply.

Sanitation at the Intake Crib

The men in charge of the water intake crib, who live in the house built at that point, have been in the habit of keeping carrier pigeons for food and for the purpose of sending messages. This flock of pigeons has been the source of a considerable amount of the intestinal organisms found in the water and which were supposed to come from sewage contamination.

These pigeons were examined and their excreta were found to contain the same species of *B. coli* as was most prevalent in the water. They have now been disposed of both for reasons of cleanliness and because they cause misinterpretation of the analytical results obtained in the bacteriological water analyses.

Arrangements have already been installed for the proper evaporation and incineration of all waste matter at the crib. Formerly such matter was placed in garbage cans and dumped at a distance of several miles. It will now all be taken care of on the spot by incinerators and only the ash need be removed. These incinerators efficiently dispose of all liquid and solid matter.

Movements of the Lake Waters

The movements of the lake produced by wind action are extremely complicated, as the wind rarely blows in exactly the same direction for any material length of time. The only winds which have a bearing on the question of the contamination of the intake are from the southeast and northwest.

Current Observations

In the shallow portions of the lake, near the shore, the mid-depth current produced by the wind is about one-third that of the surface current, while farther out in the lake it is one-fourth to one-eighth the velocity of the surface current and in each case always in a divergent direction.

All of these factors give a highly diluting effect and also further precipitation of suspended matters at a depth, as the velocity decreases.

Movements of Translation

Whipple has estimated the mean velocity of the lake due to movement of translation to be at Cleveland about one mile in six days. This is so small as to be negligible compared to the velocity produced by wind currents, particularly at the surface. He also shows that the motion of the water due to wind movements down the lake are almost invariably greater than those up the lake, varying from 3.35 miles per day to .01 miles per day. The undercurrent is southeastward toward the shore near Cleveland and in a northeasterly direction in the center of the lake.

Fluctuations of lake level greater than one foot are extremely rare at Cleveland. Off-shore winds tend, as would be expected, to lower the lake level, and on-shore winds to raise it. These fluctuations, however, are not great even with high velocity wind and the off-shore winds have a much less effect in producing currents. It requires a high velocity wind over a considerable period in order to get any appreciable change in the lake level.

Seiches

Mr. Alfred J. Henry in *Bulletin No. 262 of the U. S. Weather Bureau*, 1902, page 22, describes the rocking movements or seiches of Lake Erie as follows:

"It seems probable that the first effect of a strong wind upon the waters of the lake is to transfer from one end toward the other sufficient water to disturb the condition of hydrostatic equilibrium which exists before the wind began. Shortly after the maximum force of the wind has been exerted, the lake tends to return to a state of stable equilibrium. The water that has been piled up on the leeward shore of the lake will immediately recede, although the velocity of the wind may continue high for several hours, after the water falls. A condition of stable equilibrium is reached by a series of rockings of the water of the whole lake about a nodal line passing through the centre of the lake, the water at either end rising and falling alternately until a condition of rest is attained."

The seiche movement is, however, not a movement of translation, but corresponds to an up and down motion like that of the board of a "seesaw," and the actual translation of water is but slight, as in the case also of wave action.

The phenomenon was first discovered at Lake Geneva and the movements were called "seiches" by the Swiss.

From observations made by the Water Works Division the time required between seiches is from fourteen to fifteen hours. The time required for the transverse rocking of the lake would be about three and a half hours. The greatest effect produced was a difference in level of about two feet. The current produced by this difference in head is distributed one-half of the length of the lake.

River Currents

The current in the Cuyahoga River at Independence is quite strong, especially in times of flood, but as the river approaches the lake, the difference in level is so slight and the depth so greatly increased, that the current in linear feet per second is at best but slight, and even at times sets back in the opposite direction, due to lake oscillations.

The current toward the intake produced by the flow of the Cuyahoga River would, at its highest velocity, be 290 feet times the linear velocity which is about three feet. This in itself therefore, tends to carry sewage matter only to the harbor, or but a few hundred feet beyond the harbor entrance.

Except when sewage ice is moving out, it is evident that the greatest action, so far as pollution from the river is concerned, is due to surface currents produced by the wind.

Dilution and Sedimentation

Surface currents at this point are about five per cent of the wind velocity, but the dilution effect extends downward, even when no oscillations take place in the direction of the wind. The effect of the downward and outward mixture with the lake water tends to sedimentation and great dilution, so that in a distance of four miles, any polluting effect will have been nullified.

It is therefore only when the ice breaks up in the early part of the year and sewage ice from the harbor and river driven by southeast winds floats out by the crib, that material pollution is possible. A direct relationship between water infection and sewage ice movements is demonstrated.

Typhoid Fever in Cleveland

Prior to 1904, when the four mile intake replaced the old mile and a quarter intake in the lake, two-thirds of the typhoid fever in Cleveland came from water supply. The marked typhoid epidemic of 1903 was unquestionably due to water supply. The

typhoid fever death rate per 100,000 during that year was 114. Previous to that year the rate had varied from a minimum of 23 to a maximum of 99, the average for the period being 52. In the year 1881, when the rate of 99 occurred, the water was noticeably affected by the contaminating Cuyahoga River, and in other years, when the rates were high, mention is often made in the records of an oily taste from the river.

During these years the water taken from the old crib was materially contaminated by sewage. The flow of the river in flood never carries the sewage mud out more than 1,000 feet. The highest flow of the river at its mouth is three feet per second. This multiplied by 290, the estimated carrying power into the lake for each linear foot per second, equals 870 feet. The wind, however, carries the sewage which is near the surface for a considerable distance, estimated for a high southeast wind blowing off shore to be about 10,000 feet at this point. This brings the sewage within reach of the old crib, and although greatly diluted, is still sufficient to produce typhoidal infection in the water at this crib.

In previous years the contamination was more marked when the ice started to move out of the river and almost invariably the greatest infection occurred during that period. This is evinced by the record of the three years when the typhoid rate was the highest, i. e., 1881, 1903 and 1904.

These statistics show, however, that when the wind was blowing strongly from the south or southeast and the river was in flood, that the water at the old crib was often infected at other periods, and the typhoid rates reflected this condition. Infection of this character, while evident, was usually less effective due to the dilution brought about by the action of the wind.

Since the new intake was installed in 1904, which takes the water from a point four miles southeast of the harbor entrance, the typhoid fever rates have been low.

The year immediately following the installation of the new intake, the typhoid death rate dropped from 48 to 15 per 100,000, and has averaged 16 for the seven years that this intake has been in use.

In spite of the low death rate there have been occasional times when for short periods the water appeared to be the source of slight infection, and this infection occurred always in the early part of the year.

Spring Rise in Typhoid Fever in 1910

During the year 1910, such an infection occurred. It will be noted that the rises in typhoid throughout the year do not particularly conform to wind or rainfall, except in the spring rise, which is caused by the ice movement at that time, and this ice movement after a proper interval for incubation, is followed by the spring typhoid rise.

It is evident that the sewage ice from the river and harbor when carried out by the wind may melt and set free some of the contained infectious matter in the vicinity of the crib. With the present location of the intake, it is impossible for the velocity of river flow to affect the water at the crib; it is also impossible for the southeast winds to materially affect the quality of the water. This wind cannot produce the sharp effects on the lake that are produced by the east, northeast, northwest, and north winds. There is also almost invariably a change in direction before any material effect can be produced and even if the wind should be maintained at high velocity for considerable periods in the same direction, the dilution would be too great to be effective at the distance required for it to travel.

Spring Rise in Typhoid Fever in 1911

The spring rise in typhoid for 1911 is only very minor in character, the small figures being due probably to the fact that the ice broke up suddenly and passed out quickly by the crib, causing infection, but for a very limited period, whereas, in 1910, the ice moved back and forth by the crib several times.

Whenever a moderate infection from water occurs, as in this case, the bacteria are somewhat attenuated; the infection is produced in but comparatively few people; and those nearest the pumping station get the greater part of it. The natural sedimentation and further attenuation in the pipes protect the consumers at greater distances from the station. This was shown to be the case in New York City, where a mild rise in typhoid occurred in the spring of 1907, due to water supply.

A study of the cases and deaths in Cleveland during the spring rises of 1910 and 1911, show that most of them were confined to an area reached by the water supply within one hour from the pumping station.

The times of highest southeast wind are not concordant with the rises in typhoid fever, and bear no relation to the period of the contraction of the disease.

In 1910, the highest southeast winds were on February 26th, while the period of infection was about March 12th, following the ice movements and fairly low velocity winds.

In 1911, the highest southeast wind was April 7th, while the infection occurred about March 12th, again following the breaking up of the ice.

In 1912 the water was infected on the three days of the ice movements and very numerous tests showed no infection at any other time.

Proof of the Theory of Infection by Sewage Ice Floes

In order to test the theory of infection by sewage ice floes, a large number of samples of city water were examined for specific organisms, during the time that the ice was on the lake. No specific infection could be found and only occasional small numbers of *B. coli* were present. Many of these could be accounted for by the presence of a flock of carrier pigeons at the crib, the intestinal contents of which were examined and found to contain the same species as those obtained in the water.

During the three days in 1912 in which the ice was moving out by the crib other samples were taken and in two days out of the three specific *B. paratyphi* was obtained which agglutinated paratyphoid serum 1 to 1,000, and typhoid 1 to 500, and conformed to all the tests in a perfectly normal manner, showing no material attenuation. This organism could unquestionably produce typhoid fever and would have so produced it during the short period that it was passing by the crib, had it not been for the chlorinating plant which had been installed at Kirtland Pumping Station, and which was effectually removing or attenuating the organism, using a minimum amount of chlorin of 0.5 parts per million. After this period the numerous untreated samples taken showed no specific infection.

Fall Rises in Typhoid in 1910 and 1911, Due to Unsanitary Conditions

Since the new intake was established in 1904, the typhoid chart shows a decided drop throughout the year, but there is always a rise in the fall of the year. This corresponds to the

usual fall rise in other American cities, and it is in proportion to the general sanitary condition of the city.

Many cities have greatly reduced this fall rise, and others, in spite of good systems of water filtration, have still maintained this characteristic.

This is a direct proof that the fall rise is not due to water, but to general sanitary conditions. For further proof it is only necessary to chart the location of the fall cases to see how closely they correspond to the localities where the general sanitation is bad. This is clearly brought out for Cleveland, where the areas which inclose most of the cases are shown to be the areas which have open privies and school sinks exposed to flies and vermin, which carry the infected matter from these privies to the food in the surrounding neighborhood.

It may be objected to that the areas affected are those most densely populated. This in general is the case, but it cannot fail to be noted that the areas affected in the spring rise, due to water, are very different from those of the fall rise due to general sanitation.

While a certain relationship to density of population naturally exists in the fall rise, it is in no way commensurate with this density, and it will be seen that local foci of infection occurred in 1910, which were followed by corresponding foci in 1911.

Many of these districts infected in the fall were at long distances from the pumping station and receive stored water from the high service and were absolutely free from typhoid during the early spring rise.

In the spring typhoid rises of 1910 and 1911, over 40 per cent of the cases were in a district including only one-quarter of the population, and this same district had in the fall rise only twenty-nine per cent of the cases. Again in the fall rise the districts most infected had about half of the cases and less than a quarter of the population.

A personal visit to these summer and fall infected districts showed exposed excreta in alleys and open lots and large numbers of privies in which the excreta were accessible to flies.

The season of the year is approaching when the greatest infection takes place from these sources, and it is recommended that all exposed excreta in open lots and alleys be treated with chloride of lime and removed; that all school sinks and yard

privies be thoroughly screened and provided with spring doors; that all food exposed for sale be protected from flies, and that all public restaurants be screened. It is also recommended that the rooms of all typhoid cases, whether at home or in hospitals, be thoroughly screened, as it has been completely and repeatedly demonstrated that the flies from such rooms carry the germs of typhoid fever.

Estimation of the Various Sources of Typhoid Fever in Cleveland

By far the greatest portion of the typhoid fever in Cleveland is due to general sanitation. Roughly the various sources of typhoid in the city may be estimated as follows:

1. General Sanitation (transmission by flies, etc.).....	30%
2. Water Supply (zero to 15% in different years).....	10%
3. Milk, Oysters and Raw Vegetables.....	5%
4. Contracted out of town.....	10%
5. Contact cases	45%

If there was no typhoid from other sources, the contact cases would be wiped out so that these cases might well be distributed among the other sources of infection.

A Comparison of the Typhoid Fever Rates of Cleveland with Other Cities

In a recently published volume of the Bureau of Vital Statistics of Ohio for 1909, it will be seen that of the seven cities above 50,000 population, Cleveland is next to the lowest in typhoid fever death rate. Cleveland was 13.8, while Cincinnati was 13.7.

Of all American cities over 100,000 population having systems of water filtration, only five have a lower typhoid death rate than Cleveland, and the average rate of these cities during the last three years has been 23.0 as compared with 15.5 for Cleveland.

Such a comparison with the large cities having filtered waters shows that Cleveland already stands well as to typhoid fever rates, and that with active work on general sanitation, it would be possible to so reduce the typhoid as to make the city of Cleveland compare favorably with the ideal conditions found in many of the German cities.

The Problem of Filtration for Cleveland

The Cleveland water, if filtered, would be so treated for the removal of turbidity and there is no occasion for the employment of the low rates used in slow sand filtration. Slow sand filters for Cleveland would require a double system of pumps and about forty acres of ground, and would cost about two million dollars, with an annual cost of operation of more than \$100,000. This would naturally materially raise the water rates.

If filtration is resorted to in Cleveland to remove the turbidity from the water, a pressure mechanical filter plant can be installed for about \$600,000, which will not require extra pumping; will increase the head pumped against only from three to six feet; and with the use of one grain of aluminum sulphate per gallon for coagulation, will cost annually about \$50,000 for operation if operated continuously, but as there is no material turbidity except for a small part of the time, the actual cost would probably be from about \$15,000 to \$20,000 a year, operating on part time.

With any system of filtration there will be sections of the city on dead ends which will still have turbidity due to the action of the water on the iron pipes. This is often complained of in cities having filtered water and should not be lost sight of in a consideration of the problem.

Conclusions on Analytical Results

From a study of the analytical results obtained, it is concluded that chlorination is efficient in removing typhoid germs from water; that the hardness in the Cleveland water is too low to render a water softening plant practical as the hardness could not be greatly reduced by such a plant; and that the occasional turbidity in the water, while it can be removed by filtration, is hardly great enough to warrant the expenditure of \$600,000 for the purpose at this time, when further tunnel extension is imperative.

A Sanitary Survey of Lake Michigan Along the Wisconsin Shore

By E. J. TULLY, Chemist, State Hygienic Laboratory, Madison, Wisconsin.

There is probably no better municipal supply in this country than that furnished by Lake Michigan, if drawn at such a location

Read at the joint meeting of the Great Lakes International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors, held at Cleveland, October 23 and 24, 1912.

that it is free from sewage pollution. The Lake was originally a body of pure water, but with the development of industrial and commercial life along its shores the time came when the increased industrial and household waste had to be gotten out of the way and it was natural enough that the large body of water near at hand, apparently capable of receiving and rendering innocuous any amount of sewage, should serve as the disposal ground.

Accompanying the growth of the cities came the demand for and the necessity of a sufficient supply of pure water. The ground and surface waters could no longer be depended on to ensure an adequate and suitable supply of water, consequently the people turned to the Lake for water, and now for a number of years they have been discharging sewage into Lake Michigan through one pipe and pumping out a water supply through another. The Lake near the shore, however, is not only polluted by the discharge of city sewage, but by other sources as well, such as the discharge of harbor water, the discharges from creeks, the shore wash and stirring up of the bottom of the Lake by winds and currents, dumping of dredging material and accidental pollution by steam boats, sailing vessels, and other shipping.

The municipal authorities, awake to the danger of using the polluted shore water as a source of supply, deemed it possible to secure a reasonably safe water by extending the intake to one-half mile or so from shore and locating the sewage discharge pipe to the south of the water intake pipe, hoping in this manner to divert the sewage from the source of drinking water; but as the outlet of the Lake is comparatively small, relatively to the quantity of water it contains, there is no direct flow and the movements of the water are almost entirely dependent on local winds, which greatly overbalance the general movements of translation and drive the waters one way or the other according to their direction, velocity and duration. The atmospheric temperature also influences these movements, and near the mouth of large streams these, too, have this effect. The results of our survey conclusively show that no definite currents exist which can be relied upon to protect a water works intake from adjacent sewage pollution and so-called drift, caused by unbalanced movements of the wind; hence it is assuredly unsafe to assume that

the discharge of sewage into the Lake in a particular direction furnishes a means of protection for a water supply. That such reasoning is erroneous is amply attested to by the typhoid fever and other intestinal troubles that have appeared in certain cities along the lake front with more or less frequency.

Our purpose in making the survey of Lake Michigan along the Wisconsin shore was to find whether the water is safe to drink without filtration, and also to determine the extent of pollution of the water along the shore; also to ascertain the general quality of the water over a considerable period of time and under a variety of conditions, desiring in this manner to determine the extent to which the Lake could be relied on to furnish a safe supply.

The study of the water was first undertaken in the summer of 1909 and has been going on at the State Hygienic Laboratory under the general direction of Doctor M. P. Ravenel, Director of the Laboratory, for the last three summers. The work has been done, in a general way, in conjunction with the Lake Michigan Water Commission and the methods of procedure have been, in general, the same as those used by the states of Michigan, Indiana and Illinois.

Surveys have been made at Kenosha, Racine, Milwaukee, Sheboygan and Manitowoc, and it is our desire and expectation to complete the work by making studies at some of the larger cities north of Manitowoc next year. At each city where examinations have been carried on an inspection of the water works and sewage disposal system was made, together with an investigation of any other possible sources of pollution along the shore.

At each city a series of seventy-two samples were collected, the collection lasting over a period of six weeks. Samples were collected at the intake and at points one mile apart up to seven miles from shore in a direction at right angles to the shore line. Collections were made every other day, when four samples were taken; the intake samples came from a depth of thirty-five to forty feet, all others were collected at the uniform depth of ten feet from the surface. Either a tug or a gasoline launch was hired for the collection of the samples, the work of collection being in charge of the local health officer. In a few cases stations were marked by buoys, in others it was decided to run the tug or launch on definite ranges by the compass, using a fixed land-

mark on shore, and the distance traveled was estimated by the time at full speed. This method was found to be fairly accurate.

The samples were collected in two and one-half liter bottles, and the bottles were well iced before shipment. In all cases care was taken to have the cases delivered to the State Hygienic Laboratory within twenty-four hours from the time of collection. Data regarding the direction of the wind and current, condition of the sea, and weather conditions were taken with each series of samples.

The following chemical and bacteriological tests were made on all samples: Color, odor, turbidity, free ammonia, albuminoid ammonia, nitrites, nitrates, chlorin, oxygen consumed, alkalinity, total bacterial counts on gelatin and on agar, acid colony count, and presumptive and confirmative tests for *B. coli*. Instead of the usual procedure of inoculating the dextrose fermentation tubes with 0.1 ccm, 1 ccm and 10 ccm respectively, quantitative determinations were made, that is, instead of one tube each for 0.1 ccm, 1 ccm and 10 ccm three tubes with 1 ccm, three with 10 ccm and one with 0.1 ccm were inoculated. In this manner, it is believed, a more precise value of the quality of the water was obtained. In general, the standard methods of the American Public Health Association were followed.

We have considered the physical appearance of the water, because in connection with a water supply the amount of sediment in the water is of great importance. Modern standards require that a drinking water should be reasonably clear, at all times free from color and disagreeable odor, and fairly soft. Sanitary requirements demand that a drinking supply shall at all times be free from sewage pollution.

The results of chemical analysis indicate that the water of Lake Michigan along the Wisconsin shore is moderately hard; the alkalinity, which is due to carbonates of calcium and magnesium, averages about 111. The ammonias, nitrites and oxygen consumed were usually higher in shore than out, but often high values, indicating contamination, for these determinations were obtained five, six and seven miles from shore. As a rule, the water was free from any decided odor, always free from color, and very low in turbidity. Near shore the water was usually turbid but at one-half to one mile or so from shore and at a depth of thirty-five to forty feet, where intake pipes were located, the water was usually free from decided turbidity.

The bacteriological results of the work carried on at each city show occasional relatively high gelatin and agar counts and the presence of *B. coli* in 1 ccm and 10 ccm even seven miles from shore, thus showing the effect of wind and current. Near shore, that is from one to three miles, the results indicate that the water is often polluted and that the municipal supplies are frequently more or less polluted.

Summary and Conclusion

As a result of these studies the conclusion is that the water of Lake Michigan along the Wisconsin shore is not at all times a safe source of supply. The water is polluted and at times quite heavily so, even out to a distance of seven miles from shore. The chemical and bacteriological data conclusively indicate that there are no uniform currents in this portion of the Lake and that sewage once deposited in it may be carried in any direction, depending on the direction and force of the wind.

It is indeed as fallacious to assume that the discharge of sewage into the Lake in a given direction relative to the location of the intake pipe will afford the necessary protection to a water supply as it is erroneous to presume that the extension of the intake pipe to two or three miles from shore will ensure a safe supply. The sewage from any one point along the shore may be carried over the intake of any of the water supplies when the wind and current are in the proper direction, and for this reason the abatement of any one nuisance will not afford a great measure of relief, as the remaining sources of pollution will be sufficient to render the water unsafe.

The extension of the intakes a few miles from shore will certainly not provide at all times an adequate protection against impure water, because the results definitely establish the fact that the zone of pollution extends at least seven miles from shore.

During the last few years the conservation of natural resources has been one of the chief endeavors of our scientists and engineers. Its principles should be applied to the case in hand. The character of the water of Lake Michigan is so well adapted for domestic and industrial uses that cities along its shore can not afford to pollute it and destroy it as a water supply, and in order to reestablish its purity it is essential that the discharge of unpurified sewage and industrial waste be stopped and

that all other sources of pollution be abated or mitigated as much as possible.

Recommendations

As a result of these studies one of the principal questions which suggests itself is: What is the remedy for this trouble and what methods of purification should be adopted? This question can only be solved after a careful study of the costs involved. There are obviously several courses open. Either the sewage may be purified by one of the methods of filtration or a suitable combination of methods of disposal, or sterilized, before it is discharged into the Lake, or the water supplies may be filtered, or both methods of purification, sewage and water, may be established. There is also the problem of extension of the intakes, but as long as sewage is allowed to be discharged freely into the Lake, the extension of the intake is but a temporary expedient, for the pollution is always being driven out in greater amounts. In order to escape pollution and to ensure a safe supply of water it would be necessary to extend the intake to a distance of from twelve to fifteen miles from shore, but such an undertaking would be impractical. Estimates will show that it would be cheaper to adopt filtration, to say nothing of the greater safety secured.

It is possible with modern methods of sewage purification by filtration to secure an effluent which is safe to drink, but the method is relatively quite costly. Probably the most economical and efficient procedure would be filtration of the sewage, using trickling filter beds in order to obtain organic stability and partial bacterial purification of the effluent, and subsequently to disinfect the effluent with calcium hypochlorite in order to remove pathogenic organisms. Chemical disinfection alone offers a means whereby a high bacterial purification may be accomplished without complete purification of the organic matter, but in no sense is it a substitute for sewage purification as ordinarily understood, for, though the application of hypochlorite to an effluent oxidizes the organic matter in it to some extent, and thereby increases its stability, such improvement is only incidental.

In conjunction with sewage purification, filtration of the water should be undertaken by municipalities deriving their supply from the Lake. It will only be a few years before the Lake water will have to be filtered because the necessity of and demand for filtration is constantly increasing. Filtration is easily

possible at moderate cost. In this case the evidence indicates that mechanical filtration would be both efficient and economical, as the water is sufficiently hard. In connection with the matter of filtration it is very desirable to point out that it is extremely important that such a plant when built should be properly operated.

As a temporary expedient, prior to the installation of filtration plants, it would be desirable to treat the water with hypochlorite of lime, and thus ensure a safe supply for the time being. Only a small amount of hypochlorite is necessary, about four to five tenths parts per million of available chlorin will suffice to remove over 99 per cent of the total bacteria present.

Below are tabulated some results of the treatment of Lake Michigan water with different amounts of available chlorin, and also data showing the efficiency of calcium hypochlorite as a disinfectant for crude sewage and trickling filter effluents.

These results indicate clearly the efficiency of calcium hypochlorite as a disinfectant.

Disinfection of Lake Michigan Water with Chlorid of Lime

		Gelatin count	Agar count	Gas production in (dex- trose) fermentation tubes		
				1 ccm	0.1 ccm	10 ccm
Raw water		4200	145	+	+	+
Treated water; time of treatment, one-half hour	Av. Cl. in p. p. m.					
	0.1	1800	14	—	+	+
	0.3	150	5	—	—	—
	0.5	3	2	—	—	—
	0.7	2	2	—	—	—
	1.	2	2	—	—	—
	2.	1	2	—	—	—
	3.	2	1	—	—	—

Disinfection of Crude Sewage with Chlorid of Lime

		Gelatin count	Agar count	Gas production in (dextrose) fermentation tubes							
				0.000001 ccm	0.00001 ccm	0.0001 ccm	0.001 ccm	0.01 ccm	0.1 ccm	1.0 ccm	10.0 ccm
Raw sewage		1,230,000	1,000,000	+	+	+	+	+	+	+	+
Treated sewage; time of treatment one hour	Av. Cl. in p. p. m.										
	1.	615,000	480,000	—	+	+	+	+	+	+	+
	2.	9,000	30,000	—	—	—	+	+	+	+	+
	3.	250	700	—	—	—	—	+	+	+	+
	4.	200	300	—	—	—	—	+	+	+	+
	5.	120	150	—	—	—	—	—	+	+	+
	6.	90	95	—	—	—	—	—	+	+	+
	7.	50	105	—	—	—	—	—	+	+	+
	8.	25	96	—	—	—	—	—	+	+	+
	9.	20	45	—	—	—	—	—	—	—	—
	10.	18	40	—	—	—	—	—	—	—	+

Disinfection of Effluent from Tricking Filter with Chlorid of Lime

		Gelatin count	Agar count	Gas production in (dextrose) fermentation tubes						
				0.00001 ccm	0.0001 ccm	0.001 ccm	0.01 ccm	0.1 ccm	1.0 ccm	10. ccm
Raw Effluent		170,000	70,000	—	+	+	+	+	+	+
Treated effluent, times of treatment, one-half hour	Av. Cl in p. p. m.									
	1.	50,000	6,000	—	—	—	+	+	+	+
	2.	2,000	250	—	—	—	—	+	+	+
	3.	80	41	—	—	—	—	—	+	+
	4.	69	36	—	—	—	—	—	+	+
	5.	55	30	—	—	—	—	—	+	+
	6.	34	21	—	—	—	—	—	—	+
	7.	30	19	—	—	—	—	—	—	+
	8.	12	17	—	—	—	—	—	—	+
	9.	13	20	—	—	—	—	—	—	—
	10.	10	16	—	—	—	—	—	—	—

In conclusion, it is believed that the solution of the problem is the filtration of the Lake water and the purification of sewage before it is discharged into the Lake.

No single municipality can hope adequately to handle the situation. The problem of supplying a permanently safe water can only be solved by the concerted action of the cities along the shore, and possibly aided by the state.

Typhoid Fever in Cleveland in 1911

By T. S. JACKSON and R. G. PERKINS,
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For a number of years there has been much interest in the question of the typhoid fever known to be continually present in Cleveland, and from time to time investigations have been made and improvements in the water supply instituted. In 1904, Whipple of New York made an exhaustive investigation, at the time of removal of the intake from the frankly polluted west-side crib to the present four-mile crib. He came to the conclusion that

*The work done by T. S. Jackson in the preparation of this article was undertaken as a thesis in the regular course in Hygiene in the Third Year.

¹Jackson, Daniel D. *Report on the Sanitary Condition of the Cleveland Water Supply; on the Probable Effect of the Proposed Changes in Sewage Disposal; and on the Various Sources of Typhoid Fever in Cleveland, May 25, 1912.*

while the condition of the water at the four-mile limit was *at that time safe*, it would be only a question of time before purification would be needed. After the removal of the intake there was a marked diminution in the typhoid, and in especial the serious spring epidemic disappeared. As the city grew, the curve of incidence and mortality again showed a tendency to rise, and the reappearance of the spring epidemic indicated that at times the water was dangerous once more. At the request of the Board of Health, investigations were undertaken in this laboratory, and a report was made on the basis of which disinfection of the water was recommended in the spring of 1911. A hypochlorite plant was finally installed in the early part of September, but, owing to certain technical difficulties, the dosage of 0.7 parts to the million, which had been recommended on the basis of several months' investigation, was not introduced in full amount until the twenty-ninth of the month. At that time a lively autumn epidemic was in progress, associated with the rainiest season which has been recorded for ten years past.

Owing to the necessity of introducing the hypochlorite at the pumping station, the crib being inaccessible during a large part of the winter, the time interval for the dissipation of the chlorin was small, the treated water entering the mains in less than five minutes after the dosage, so that there was a disagreeable persistence of odor, and within a limited distance from the pumping station, also of taste. In consequence, there was much public opposition, in spite of the sharp drop in the typhoid incidence, and later in the winter Mr. D. D. Jackson of New York was called in by the city to investigate the question further. The work done covered the winter period, during nearly all of which the lake was covered with ice, and the report¹ appeared in printed form in October, 1912.

Inasmuch as the work of this present paper dealt with practically the same conditions as those on which the report of Mr. Jackson was based, its completion was delayed until the appearance of the printed report, for the purposes of comparison and discussion. The summary of the above-mentioned investigations has been copied for this purpose and will be found in the early part of this number of *THE JOURNAL* (page 792).

Like 1904, then, the year of 1911 has been characterized by a notable improvement in the water supply and an investigation by a professional sanitarian. It is therefore of great interest and

importance to discuss the question of the etiology and distribution of Cleveland typhoid on the basis of such information as is accessible.

Sources of Information

Reports of cases and deaths to the Health Department.

Examination of hospital records as a check on the reports to the city.

Reports from the City Bacteriological Laboratory showing their daily records of fermentations.

Reports from the Water Department showing turbidities.

Reports from the Water Department showing amount of hypochlorite used.

Reports and maps from the Engineering Department showing sewage distribution.

Reports and maps from the Health Office showing unsewered districts.

Reports from the Weather Bureau showing rainfall, wind, temperature, etc.

Reports from the Board of Elections showing ward population and population density.

To all who were concerned in supplying us with the above information our thanks are due.

In this connection it should be noted that in 1911 the records of cases as received by the Health Department were incomplete as to details, giving in the main only residence, age and sex and *date of reporting* rather than *date of incidence* of the disease. In some cases notes are accessible showing that the patient was out of town at some part of the incubation period. The meagerness of this information renders it impossible to draw sweeping conclusions, and great caution must be used in interpretation.

Analysis of General Data

All cases reported to the Health Department have been carefully checked, and such duplications as were noted have been subtracted. Such cases as were probably out of town in their origin, owing to the fact that they had no address, or were actually recorded as of recent arrival, have been separately considered and omitted in the discussion of the etiological factors and on the maps and charts. In addition, all typhoid records of the principal hospitals were examined and compared with the city records, an investigation resulting in the discovery that sixty-

three cases, or about 10 per cent of all, were never reported to the city at all. These cases occurring throughout the year, somewhat altered the appearance of the distribution maps, and the curves of incidence. All deaths had been reported, so that there were no change in this regard.

All cases in which an address was given have been plotted on city maps, using the seasonal periods from December to June and from June to December to distinguish the winter and summer cases, and with the further differentiation of epidemic from endemic cases.

Where sex and age were given, summaries and percentages have been collected and tabulated. The relations of etiological factors have been studied and such conclusions drawn as appeared justified.

Taking up first the information acquired directly from statistics:

Cases reported by months:

	City Records	Corrected by comparison with Hospitals, etc.
January	30	32
February	22	23
March	46	49
April	32	37
May	24	27
June	32	40
July	18	24
August	68	80
September	154	167
October	56	62
November	35	38
December	17	18
	<hr/> 534	<hr/> 597
	25	25*
	<hr/> 559	<hr/> 622

*Cases reported dead of Typhoid. Not reported as sick. From City Records.

Deaths reported by months:

	City Records	Corrected
January	4	4
February	3	3
March	3	4
April	8	9
May	3	2
June	5	7
July	3	4
August	3	7
September	9	16
October	5	8
November	4	8
December	2	2
	<hr/> 52+25	<hr/> 77

Age and Sex: These figures are based on 559 cases in which sex was given and 518 in which age was given. Males infected, 37.4 per cent; females, 62.6 per cent.

Age Incidence in Females

1—5 years.....	5.4%
5—10 years.....	18.4%
10—20 years.....	24.7%
20—30 years.....	24.7%
30—40 years.....	11.8%
40—50 years.....	10.2%
50—60 years.....	3.7%
60—70 years.....	1.1%

Age Incidence in Males

	2.6%
	8.1%
	24.1%
	36.0%
	15.6%
	9.4%
	3.6%
	0.6%

As in other lists, this shows the main incidence to be between *ten and forty*, but it is of interest to note the unusually large proportion of females under ten. Summarizing the cases occurring up to ten years, as being more exposed to neighborhood infection, it is of interest to note that for the six winter and spring months of December to June there are thirty-nine cases, and for the other six months in which fly and food infections would be most expected only forty-two. Among the females *above twenty*, that is to say, among those in which the highest proportion of housewives constantly exposed to neighborhood infection *should* occur, there are 52 per cent of all the female cases, while among the men of the same age periods, most of whom are out at work all day, there are 65 per cent of all male cases. It is recognized that in the absence, noted earlier, of detailed epidemiological data, no conclusion can be drawn from this, but it would appear to suggest a *central source rather than a number of local ones*.

Out of Town Cases: As noted above, there were certain cases which may be considered as probably out of town in origin. Fifty-three cases of this type were found, of which thirty-six were *almost certainly* contracted outside the city, while the other seventeen were *probably* so contracted. Cases which come into the Marine Hospital are usually sailors from coastwise boats, staying only a few days in one place, and even in the winter they are apt to be wanderers. Many cases from the small towns in the neighborhood come into the hospitals for treatment, having acquired their infection elsewhere. It is interesting to note that among these fifty-three cases there were seven deaths, giving a mortality rate of 13.2 per cent, which is unusually high.

Deaths: Omitting these out-of-town cases, there were seventy deaths attributable to Cleveland conditions. This would indicate a rate of 12.07 per 100,000, or somewhat lower than the

gross mortality figures indicate. On the basis of comparison with the cases reported to the Health Office there is an *apparent* mortality from typhoid of over 26 per cent, but previous experience shows that this apparently high rate is due to *unreported cases rather than to severity of the epidemics*.

Etiology

With a reported incidence of 569 cases (omitting out-of-town infections), and a corrected mortality of seventy, it is of interest to analyze as far as possible the etiology of these cases in order to obtain or to strengthen a basis of action. Theoretical estimates are interesting but of little value, and an acute infectious disease can be efficiently attacked only by *certain* knowledge of the underlying causes. Where the records are insufficient in detail, the evidence must needs be circumstantial, but if there be enough circumstantial evidence, we can at least make an attack on the enemy and will soon find if our attempts are in the right direction.

The cardinal factors known to be concerned in the dissemination of typhoid are contaminated food and drink, especially water, direct contact, and flies, the whole being governed by the necessity of the presence of typhoid organisms in viable form, and probably in fairly large numbers. There are extremists who seize upon one or the other of these factors as the one and only, paying scant regard to other possibilities, but to the conservative observer it appears that each locality is more or less a problem by itself, and that, while broad general principles may be laid down, they are subject to modification according to local conditions. Perhaps the most noteworthy of these principles relates to *fly infection*. While there is no doubt that in the states south of Mason and Dixon's line the fly bears no small part, even here the evidence is largely circumstantial. The change in the typhoid curve in Jacksonville after the active fly campaign of the Health Office is the best single instance we have. Certain peculiarities have as yet to be explained, such as the fall in the curve even in the cities of the far south, where the "fly typhoid" begins in June and then slowly or rapidly falls off long before the disappearance of the fly. Again, in cities in our latitude it is not uncommon to have the autumn typhoid begin as late as October, although the fly has already been in evidence for several times the typhoid incubation period. The writers are inclined to believe that in

the northern cities, at least where sanitation is fair, there is a tendency to exaggerate the role of the fly, and the evidence in Cleveland seems to point to this.

For convenience the year has been divided into two periods, *from January first to July first*, during which months the possibility of fly transference is at least minimal, and *July first to January first*, which includes both the early and the late fly periods and the deaths which may result from the cases infected in the summer and the fall months. The etiological factors will be taken up separately, and such cases referred to them as appear proper.

Flies: For the transfer of infection by flies, three things are needed: the presence of breeding places for the insects, the presence of unprotected excreta and unprotected food, and the presence of viable typhoid organisms in the excreta. In the absence of detailed knowledge as to carriers in Cleveland, and the certainty that a fair proportion of those infected remain carriers for an indefinite period, it is clear that every unprotected privy must be considered as a possible source of danger. The map showing the unsewered districts and the location of open privies is therefore very important. In general one may say that in the unsewered districts sanitation is apt to be of a lower grade than in the sewered districts, and that it is here that we will find excreta deposited in the alleys and the open lots. On the other hand, as noted by Mr. Jackson in his report, this carelessness is mainly on the part of children, and we know that the proportion of typhoid cases, and consequently of typhoid carriers, among them is comparatively small. In such districts we will expect to find during the summer months a larger proportion of cases than in the winter months, and in the absence of proof to the contrary it appears probable that these are due to flies or to other gross breaches of sanitation. In Cleveland there are several districts where the conditions are bad, and in these districts, situated in the flats and in the southern and newer part of the city, there are groups of cases of this character, which are absent in the winter months. An active campaign has been carried on against the fly this summer (1912), and some two-thirds of the open privies have been screened or connected with the sewers, and it will be interesting to compare the pin maps for the years of 1911 and 1912. In 1911 the fall epidemic was on the rise, and no attack was being made on the fly. The weather did not change, but

disinfection of the water was undertaken, and some notable changes occurred. In previous years, as will be seen on consulting Chart I, showing the fall curves for the past few years, the rise has been more or less sudden, usually with a step-like effect, but the fall has been more gradual and has showed a marked tendency to interruptions of a greater or less degree. These secondary rises have been attributed to a secondary invasion of flies in Indian Summer and to the onset of cold weather, driving the flies into the houses. In 1911, however, the *fall was continual and there was no secondary rise*. This is suggestive of a mixed etiology, to say the least. It appears to us accordingly that while flies are important in certain districts at certain seasons, their influence is not as large as Mr. Jackson appears to think.

Food and Beverages: During 1911 there is no definite evidence as to food or to milk epidemics. The milk supply is carefully supervised and cases of typhoid on the farms have not been found. There has been no attempt to examine for carriers, but on the other hand there has been no indication of groups of cases along single milk routes, so that whatever may have been the number of cases due to these causes, we have no evidence leading to an estimate of their proportion.

Contact: Mr. Jackson in his report states that he estimates that some *45 per cent* of all cases are contact cases. It is convenient to group all cases which cannot be otherwise explained or which one does not desire to explain otherwise under *contact*, and this has been noteworthy in several reports of epidemics, but in a city so widespread as Cleveland, and with the reported cases in the main so scattered, we are inclined to believe, even at the risk of being considered iconoclastic, that for the establishment of so high a rate for contact cases there should be some evidence of contact; in the present series, with the exception of two groups of cases in which the patients were in the same house and the cases followed at the proper interval, there is nothing even suggestive. In the report of typhoid for 1912 now being prepared as a thesis, it is hoped that the information may be more definite in these doubtful cases.

Water: This is the factor about which the most discussion has arisen in the last few years, and it was to determine the responsibility of the water supply that Mr. Jackson was employed by the city. His findings are of great importance on account of the very definite nature of his statements, and also on account of

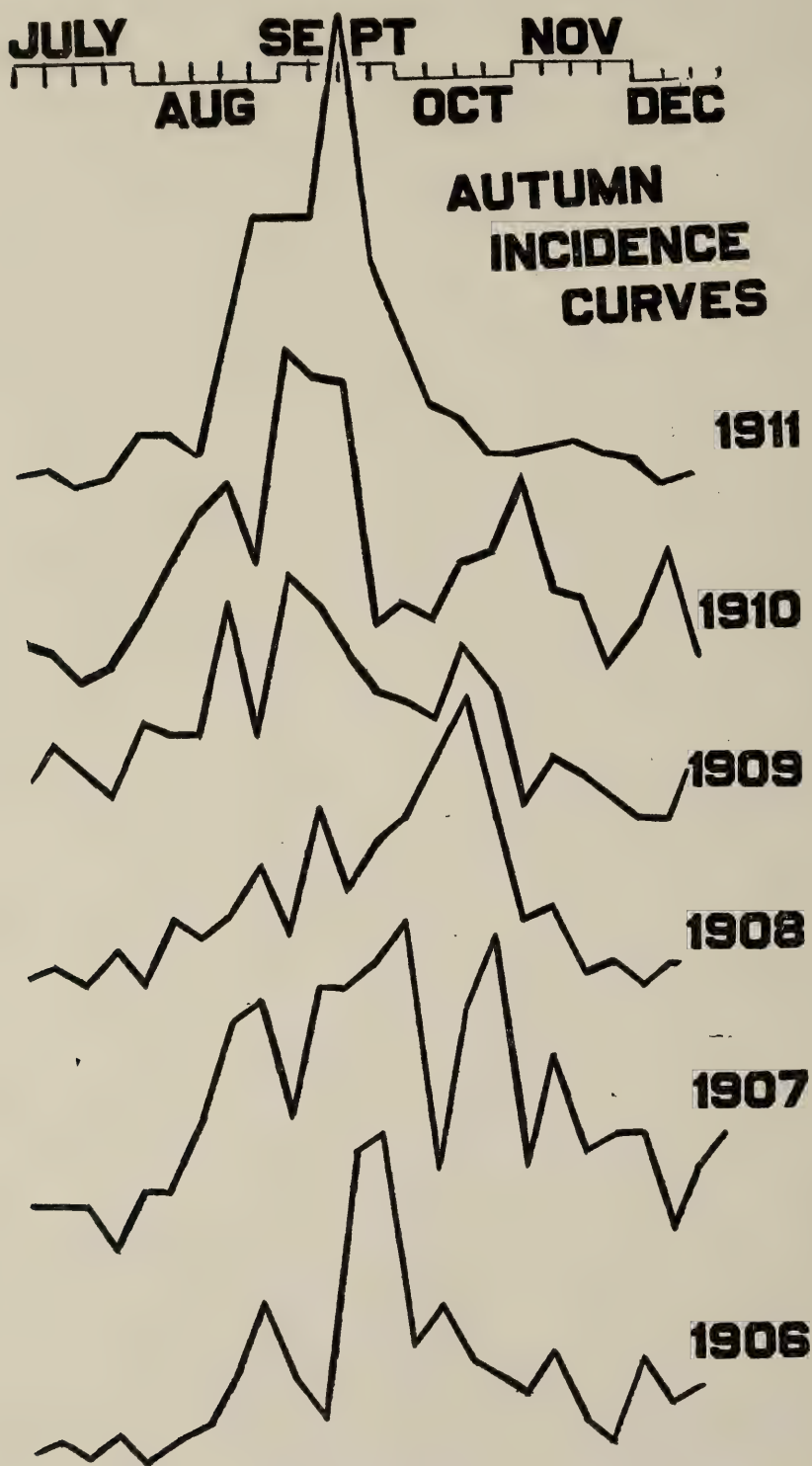


CHART I.

Showing weekly totals for corresponding weeks for 1906, 1907, 1908, 1909, 1910, and 1911. To emphasize the regular secondary rises in all years except 1911. The hypochlorite treatment was instituted at about the apex of the curve in this year.

the fact that his general conclusions disagree essentially with those of all the other men who have worked on typhoid along the Great Lakes. He states in brief that the water at the four-mile crib is not subject to pollution except at the time of the breaking up of the ice on the lake; that the sewage from the Cuyahoga is *entirely* deposited at or before a line two miles from the mouth of the river; that it is impossible for the wind or for floods or for return currents or for all together to bring the sewage from the lake front to the crib except by aid of the ice. One may quote McLaughlin² to the effect that the water of the Great Lakes for a distance of at least that of our intake is periodically polluted in the neighborhood of the towns. One may quote the Lake Michigan Report³ to a similar effect, and the article by Tully⁴ on conditions along the Wisconsin shore, as well as the results at Toronto, as showing that these pollutions are carried by wind currents and flood currents to distances of from five to twelve miles, and that it is not possible to state, with any degree of certainty, when a pollution may occur. These results are recorded mainly in Lake Michigan and in Lake Ontario, which are deeper and therefore more favorable to sedimentation than Lake Erie. For so marked a disagreement with experienced investigators excellent evidence should be adduced.

There are two sets of findings which indicate the responsibility of water as a carrier of typhoid: A, such *typhoid incidence* as can fairly be set down to it, and, B, the *laboratory findings* which show pollution with intestinal organisms.

That the water was concerned before the change of the intake is admitted on all sides. That since that change it was concerned at certain periods in the winter in connection with weather conditions is also agreed upon. That the fall in typhoid incidence which has held good throughout the thirteen months since the introduction of hypochlorite is suggestive, though as yet the proof is incomplete, should also be admitted.

So much for the epidemiological evidence. In the City Bacteriological Laboratory there have been daily examinations of the water since the change in the intake, and there has been noted a steadily progressive proportion of positive findings in the lactose

²McLaughlin, Allan J.: *The Relation of Interstate Waters to the Spread of Typhoid*, Jour. Amer. Med. Assoc., 1912, LIX, 1425.

³First Report of the Lake Michigan Water Commission, Urbana, Illinois, 1909.

⁴Tully, E. J.: *A Sanitary Survey of Lake Michigan Along the Wisconsin Shore*, this Journal, p. 809.

fermentation tests. In a previous article by one of us⁵ it was considered that the presence of these organisms showed that the sewage from the Cuyahoga River was able to reach the crib and appear in the water at the laboratory. Sudden increases in the degree and frequency of the pollutions were noted as following floods in the river and favorable wind conditions, and in many instances rises in the typhoid curve took place about three weeks after such increases.

In consideration of this point, Mr. Jackson urges first that the laboratory has been led into error from the fact of the presence of a flock of pigeons at the crib, in whose excreta he found the same intestinal organisms as appeared in the city water. This suggestion may be dismissed as frivolous without further discussion, inasmuch as the same organisms were isolated at a time when the whole surface of the lake was covered by ice, and also at several periods after the birds had been removed. He urges in the second place that it is a physical impossibility for the sewage to reach the crib save by help of the ice. This is based on calculations as to the flow of the river, the tendency to sedimentation, and findings relating to deposition of sewage mud in a line from the mouth of the river to the crib. The variability of the wind currents and the action of seiches, etc., are also taken up.

Detailed discussion of these points is not in the province of this article, but inasmuch as much of our work is founded on the pollution of the intake by shore water, some attention must be given to them.

In brief, the contention of Mr. Jackson is that the flow of the river, as calculated in part from recorded rises and falls well above the city and in part from calculations of maximum and minimum flow, will be so diffused on meeting the large body of water in the lake, and the sedimentation will be so great, that no trace will reach much, if any, farther than two miles from the mouth of the river. Moreover, that inasmuch as specimens taken through holes in the ice show that the mud on the bottom contains no traces of sewage putrefactive material beyond two miles, additional proof is thereby added.

That there is no current of the lake as such and, moreover, that the currents instituted by the winds, by the return flow where the water is piled up on the shore and must return in some way,

⁵Perkins, R. G.: *Typhoid Fever in Cleveland in Relation to Pollution of Lake Erie*, *Cleveland Med. Jour.*, 1911, X, 81.

and the currents caused by the seiches cannot *in any combination* carry pollution to the four-mile distance.

In taking exception to these conclusions we note first that while it is quite possible that when the lake is covered with ice all matters heavier than water may be settled out within the two-mile limit, this will care neither for floating solids or for materials caught in the oily matters constantly present in the water of the Cuyahoga. We note also that, granting for the sake of argument that the sewage infected mud is all deposited at the two-mile limit or within it, yet since the depth of the water at this line is forty feet or less, and the depth of wave disturbance is at least fifty feet, this gives a large mass of polluted material lying two miles from the intake, liable to be stirred up by surface disturbances, and while in suspension carried out by deep currents. We note further that the distance to which materials in suspension can be carried has been established by a number of careful observers to be as great as ten or twelve miles, and that the areas of infected water may move more or less in masses, on either side of which clean water may be found, and that these conditions obtain even in lakes where the depth and consequently the tendency to sedimentation are far greater than in shallow Lake Erie.

We add to these notes that the routine cultures in the City Bacteriological Laboratory show a pollution throughout the year in varying degree, and we fail to find any source of sufficient magnitude other than the polluted shore waters which may account for this.

That a water is safe *a priori* because there are no *explosive outbreaks* attributable to it is a superannuated idea, for most students of the matter agree that the pollution may be of any degree and that it may be such as to cause only occasional cases, which only disappear when the cause is removed.

It is argued that when such cases are *water borne*, the majority of them will occur within a limited time period from the intake. This has been set in Cleveland as one hour. The mains are four feet in diameter, the flow is fairly rapid and constant, and according to the reports of the Water Department the amount of suspended matter is small; consequently it seems doubtful that the great majority of the organisms should be sedimented out in that time. Moreover, the relative bacterial counts at the pumping station and the tap in the laboratory do not indicate such a divergence, nor do the presumptive tests for intestinal organisms.

While the maps show that there are more cases in the district near the pumping station, analysis shows that when one considers that the most thickly populated of the wards are included in this one hour area and estimates the cases on the basis of population, the disproportion becomes less prominent or disappears (Charts II and III).

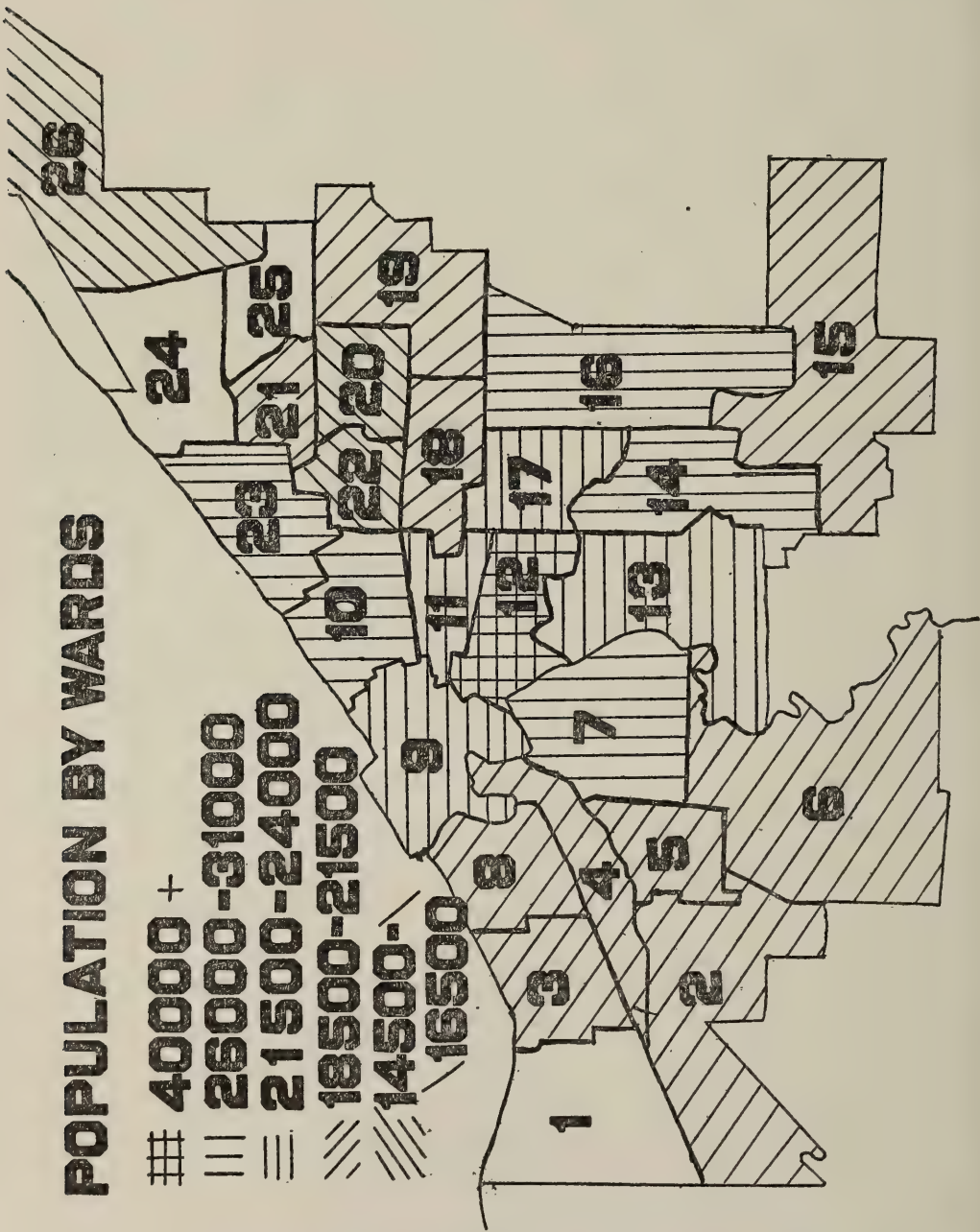


CHART II

Population by wards according to last arrangement. Cross hatching, etc., shows relative population.

That the summer typhoid may well be due in part to flies and general unsanitary conditions is readily admitted, and there are at least two groups of cases (A and B), on Chart IV, which are most suggestive. Yet some of the areas which are unsewered are free from typhoid, and even some of the areas noted as being unsanitary and also having typhoid have been found, after cor-

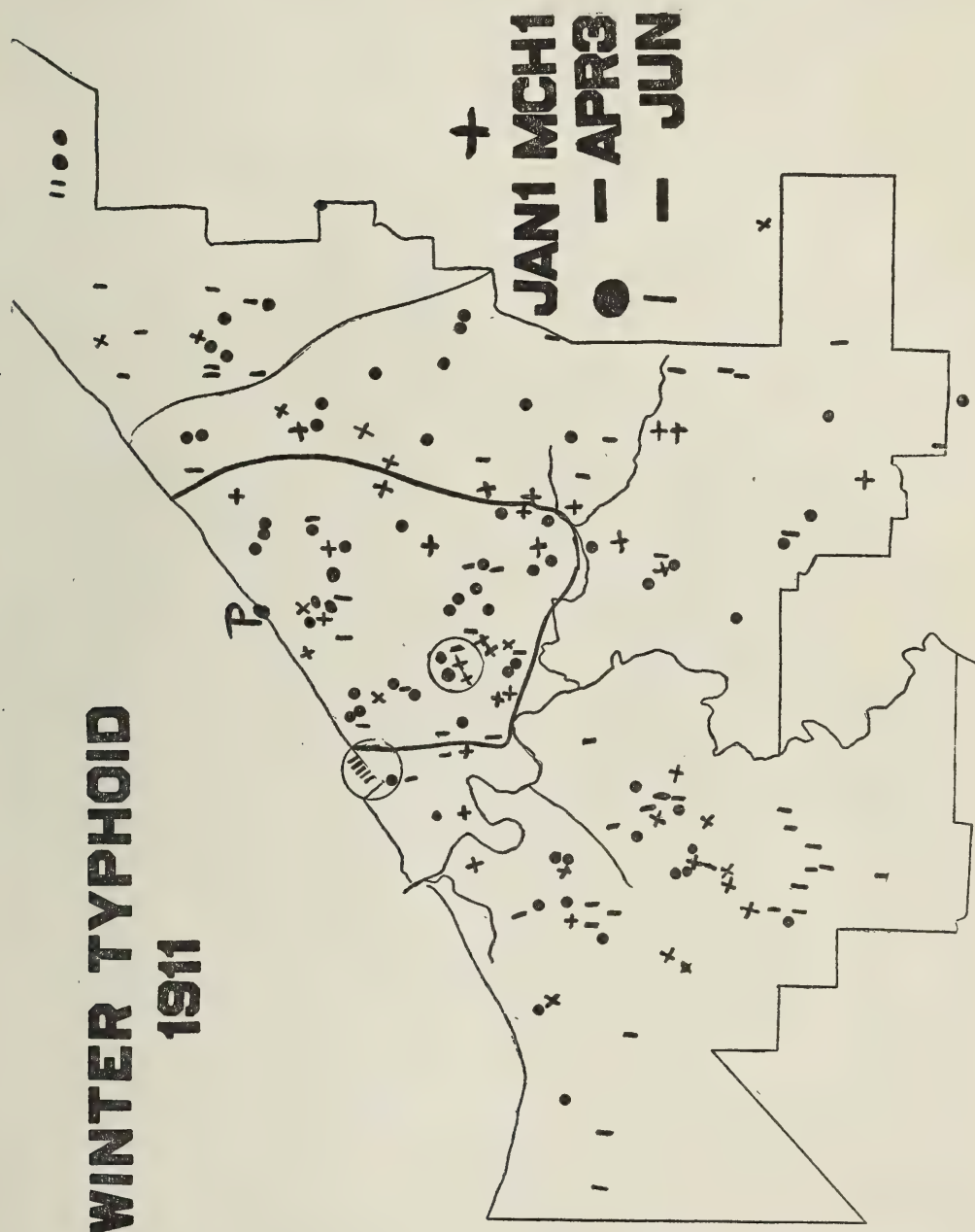


CHART III

Typhoid cases reported from January 1 to June 30, 1911. Pre-epidemic cases indicated by +, epidemic cases by •, postepidemic cases by -. Area included by irregular line shows one hour time area from pumping station marked P.

rection of errors in addresses, etc., to have no cases whatever. With the removal of these errors and of the two groups noted, the relative distribution will be seen again *even in the summer* to bear a more close relation to population than to anything else.

With this discussion of the report to the city, we may enter on the etiology of the 1911 typhoid as it appears to us. Some 10 per cent of all the reported cases have been set down as *out*

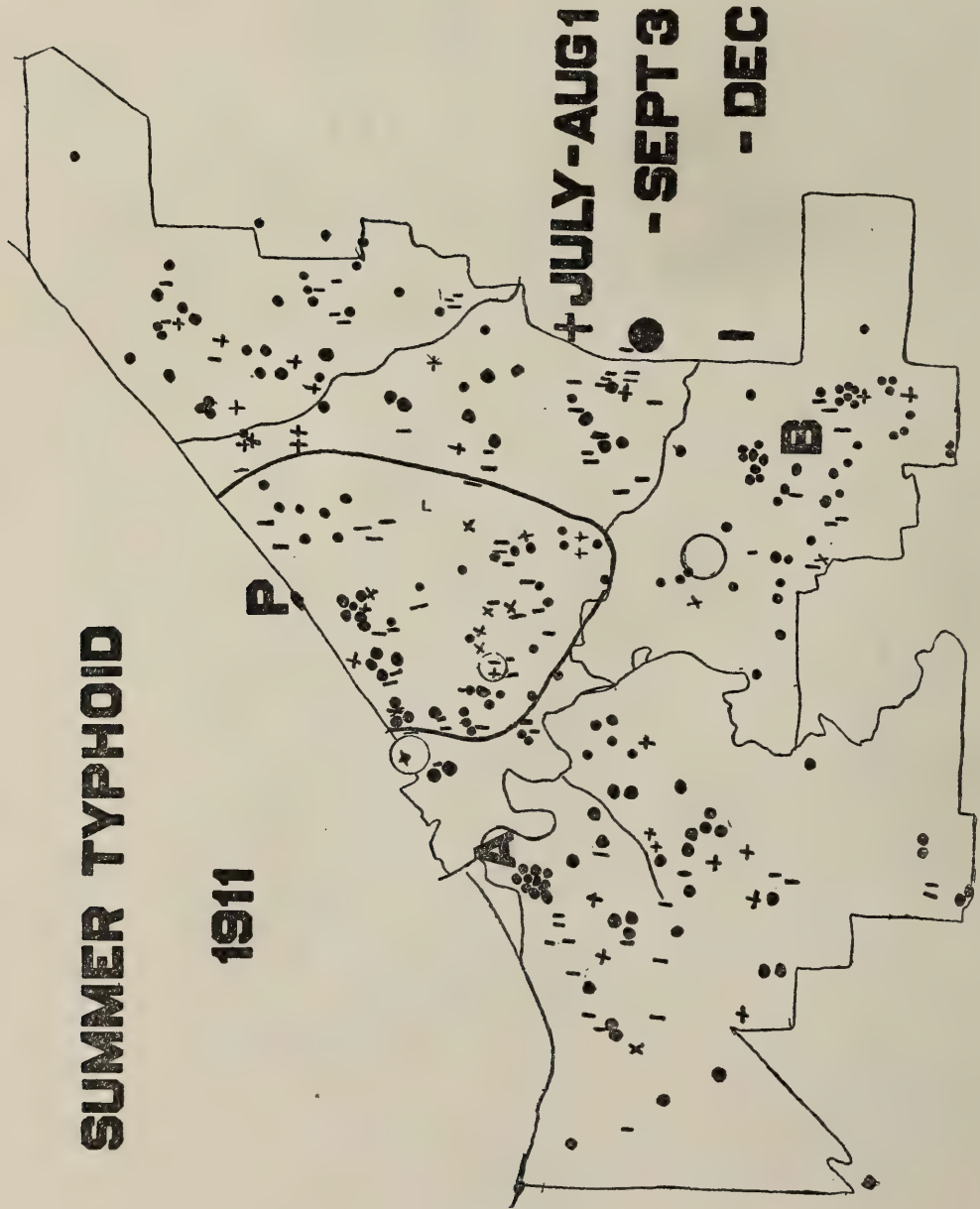


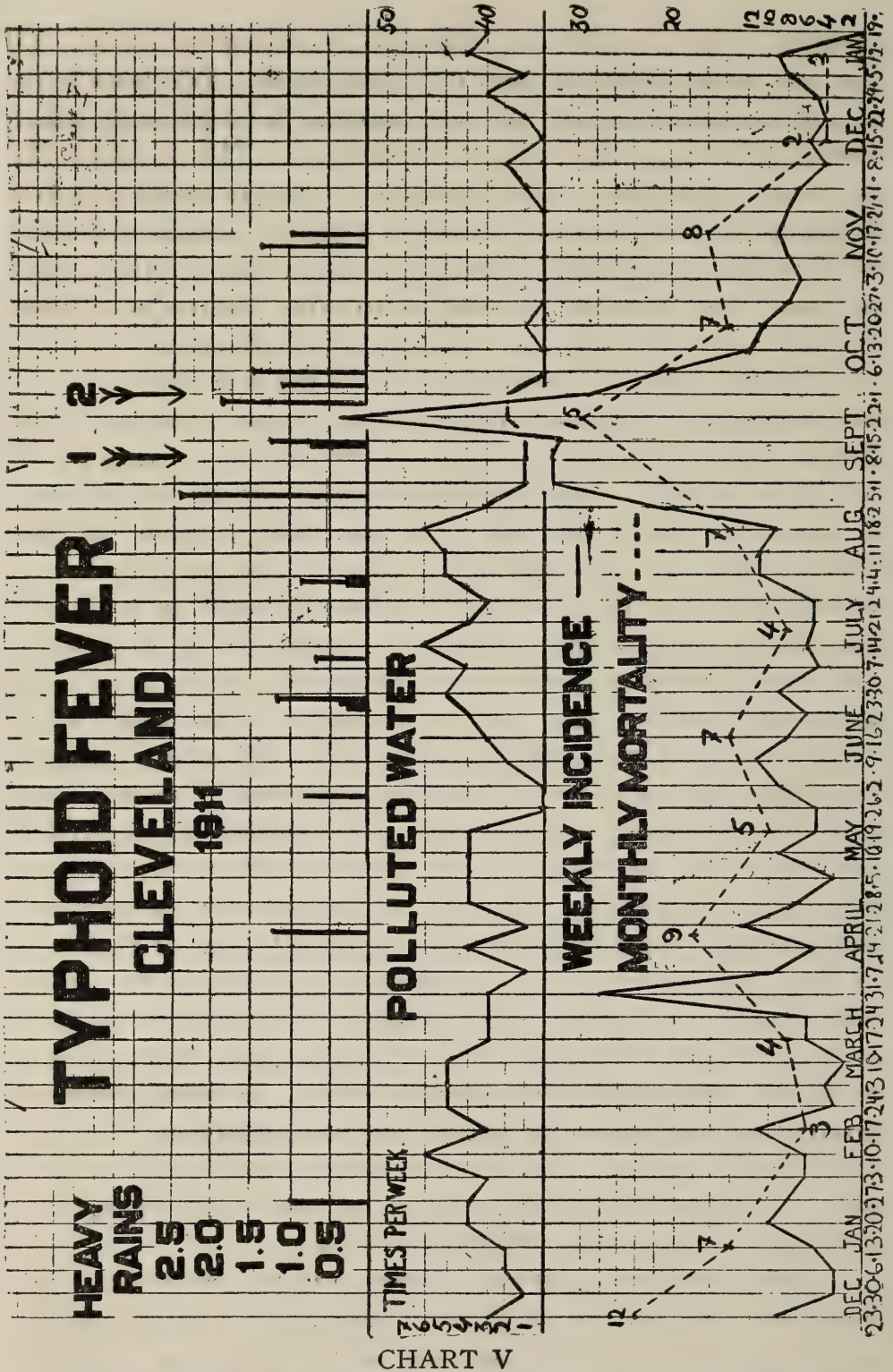
CHART IV

Typhoid cases reported from July first to December thirty-first. Pre-epidemic and other cases as in Chart III.

of town, acquired either at a distance or in near-by places. Of the rest, there is evidence only on a few points. The cases in the spring rise, about seventy-five, are admitted to be probably water-borne, following certain weather conditions. This is about 10.5 per cent. The cases in the unsanitary districts which occurred in groups in the summer season are probably largely the result of flies and insanitation. There are about fifty of these, or 7 per cent. No absolute evidence as to other factors is at hand. This accounts for only about 18 per cent of all cases.

The fact that the secondary rise in the fall months, which was attributed to flies and Indian Summer, was wiped out by the disinfection of the water-supply is well shown by Chart I, in which the incidence for the summer months for the last six years is compared; this is the first time that such a curve has been noted in the Cleveland typhoid. As long as the hypochlorite was kept at the point indicated by experimental work as necessary, the fall in incidence and mortality increased, but in three weeks after the amount was reduced (February 23, 1912) in response to popular clamor, there was a moderate recrudescence. While it is true that the removal of any one cause will reduce incidence from other causes, the only other improvement to be considered was the fly campaign of last summer, which was not entered on until the middle of 1912, and can therefore affect only the summer typhoid of *that year*. It can in no case account for the steady and persistent fall in typhoid after the disinfection of the water. If, then, this decrease is to be accounted for only by the protection through disinfection, many of the cases of endemic or inter-epidemic type must have been due to water, and the proportion of 10 per cent should be materially raised. Further, while the proof is not complete, it is certain that the proportion of summer cases due to flies and unsanitary conditions should also be raised, and to a degree which will perhaps be better understood when we complete the data for typhoid in 1912.

One other point must be referred to in this connection. We have been criticized for taking *three weeks* as the period between an infection of the water and the appearance of a rise in the typhoid curve. *Two weeks* is suggested as preferable. This may be true elsewhere, but in Cleveland cases are rarely reported before the end of the first week or ten days of illness, many of the physicians waiting for the laboratory report on the Widal test, which, as is well known, rarely appears before the end of the



Graphic History for 1911. Upper section shows heavy single rains on their respective dates, with amounts. 1 shows date of introduction of hypochlorite, at a rate of 0.4 parts per million, 2 shows date of introduction at 0.7 parts.

Middle section shows times per week in which fermentation was found in the lactose bile tubes in the City Laboratory.

Lower section shows solid line of typhoid incidence as reported and corrected. Dotted line shows monthly mortality in the same way. Out of town cases have been omitted from both these.

first week. As a result, the great majority of the cases reach the city hall *not under three weeks* from the date of infection, and the hospital cases even later, as these are apt to be reported in groups at the end of the week. The exception to this is after a sharp epidemic has set in and has become common knowledge. Diagnoses are then made sooner and cases reported more promptly, so that the form of the incidence curve or cases *as reported* may differ materially from the curve on the basis of *date infected*.

A summary in a graphic manner of the entire year will be found on Chart V. The year has been divided into weeks and the relations of weather conditions, pollutions of the water, and typhoid incidence and mortality are shown. The period in February in which the water is practically constantly infected is associated partly with the spring thaw, and partly with heavy off-shore winds, while the later pollutions are fairly closely associated with the heavy rains for which 1911 was conspicuous. It will also be noted that whereas these heavy rains tended to be followed by increases in lactose fermentations *before the use of hypochlorite*, in spite of the fact that the storms later in the year were the heaviest we had, the water was not notably affected. From September to February, inclusive, there was no means of obtaining untreated water so that all records in that interval are on the *treated supply*. The amount of hypochlorite used from the end of September to the end of the year varied from an estimated available chlorin of 0.7 to 0.8 parts per million.

Summary and Conclusions

1. In the year 1911 typhoid fever was present throughout the year in endemic form, with two epidemic rises, one occurring after the spring thaw, the other in the late summer.

2. Examination of the etiological factors shows that greater accuracy of records in the reporting of cases to the Health Office is necessary, and that the present incompleteness makes it very difficult to establish the cause in many cases.

3. The alterations in the incidence curve and in the fermentation curve after the disinfection of the water suggest that some at least of the *endemic typhoid* is water-borne.

4. The nearly constant pollution of the water at the four-mile crib, the absence of any adequate source for such pollution other than the infected water along the shore, and the assurance that these pollutions may occur at any time and without sufficient

warning, lead us to believe that the water supply is not safe without some sort of purification, and that if chlorination is to be continued, the disinfectant must be administered in sufficient amount to reduce the fermentation findings to a minimum.

5. After critical consideration of the evidence in regard to local conditions, and of the evidence obtained in other places where the conditions are more or less parallel, we find ourselves obliged to disagree radically with the conclusions of the report to the city, referred to elsewhere.

Public Education a Duty and a Responsibility—The education of the people on public health matters is not only a responsibility but also an unavoidable duty. The people are interested in public health questions today as never before. They want knowledge and they are going to have it. If the medical profession does not give it to them, they will procure it elsewhere as best they can. The duty and necessity of professional activity in this direction have been generally recognized. It must also be recognized that the assumption on our part of this responsibility carries with it an obligation to abstain, both individually and collectively, from anything which may impair our usefulness in this particular. It is of the first importance that the public, if it is to look to us for instruction on health matters, must be able to place reliance in any statements we make, either as individuals or as organizations. For this reason, the utmost care should be exercised as to the accuracy of all exhibits and statements made for the public's use. Exaggerations or unwarranted assumptions should be avoided carefully. The place for the discussion of theories, unproved hypotheses, evidence of doubtful value and general statements lacking positive proof to support them is in professional circles and before scientific audiences. Only those facts which are proved beyond question, those theories which have been tested in every possible way, and those opinions which have been accepted by the majority of scientific men have any place in public exhibits or demonstrations. Exaggerated statements, deductions based on incomplete evidence and favorite theories or pet hobbies of one person or another are out of place in such exhibits. The mass of the people, however interested they may be in health topics, have not the necessary training or knowledge of scientific data to enable them to distinguish between demonstration and assumption in scientific matters. We can best secure the confidence of the people by using the utmost caution and conservatism in presenting scientific truths, and by avoiding overstatement, exaggeration, inaccuracy or unwarranted enthusiasm in any material which is placed before them.

—(J. A. M. A., LIX, 1912, 1305.)

The Cleveland Medical Journal

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EDITORIAL

Is Lake Erie Water Safe

The importance of the drink problem cannot be overestimated. But whether alcohol is ever a food is not so important a question as whether our local source of supply gives us water that can be considered uniformly free of danger. Anything so necessary to man as water ought to be safe enough at all times to be taken into the system without any dangerous possibilities. Perhaps the present number of THE JOURNAL will make it appear that there is, if not doubt, at least controversy as to the safety of our water. It may be well to recall the steps in this evident divergence of opinion. At the request of the Board of Health

the epidemiology of typhoid was subjected to local study to determine the bearing of the water supply in the causation of the disease. The conclusion reached was that our present supply must be considered liable to sewage contamination and that such pollution actually does account for the gradual increase in typhoid fever in Cleveland during the past few years. Following the demand that something be done to make the water safe, a sanitarian from out of town was called in. His report minimizes the role of the water supply in the causation of typhoid. Finally, in the joint meetings of the Great Lakes International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors, held in Cleveland October 23 and 24, it appeared that the city's expert stood rather alone in his conclusions and that the possibility of sewage contamination of the water of the Great Lakes is not to be lightly set aside. What shall we believe? And in the meantime, what is the poor Clevelander, who likes his water—when he does take it—pure, to do? Moderation is a virtue and even in the drinking of our water there is no need to let the fear of typhoid alarm us. It does seem that the city is placed in such a position that it must attempt to harmonize the differences of expert opinion which exist, or must endeavor to learn which of the divergent opinions is the correct one.

Weight of authority means something and is in favor of those who look upon the untreated water of the Great Lakes as a questionable source of supply. Whether, in spite of preponderating opinion to the contrary, the city chooses to accept as final the opinion for which it has paid, is a nice question which it would be far beyond us to attempt to solve. We fear, however, that the city's expert gave *ex parte* judgment, that he laid his mathematical conclusions open to doubt when he based them upon statistics which are themselves not mathematically exact, and that possibly he permitted himself to lean a little toward the viewpoint of those who, employed to pump water, take the not to be understood position that any questions as to the purity of the water pumped are personal aspersions.

When Doctors Agree

It should be of very great interest to the medical profession in America that the demands of their British colleagues regarding

the remuneration for work under the new Insurance Act have been virtually conceded by Mr. Lloyd George. The offer originally made by the Chancellor was 6 s. a head of the insured population per annum; the sum demanded by the British Medical Association was 8 s. 6 d; the offer now made is 7 s. for the doctor, 1 s. 6 d. for drugs, and 6 d. for extra drugs where necessary, making a total of 9 s. which will be available for the doctor, for it must be remembered that it is customary in England for the doctor to dispense his own medicines. When the extra drugs are unnecessary, the 6 d. would be added to the doctor's allowance. On this side of the Atlantic, we are not in a position to judge whether the offer should be considered as adequate; that is indeed none of our business. On the other hand, it is of extreme importance for us to take note of the bargaining power which the British medical profession has acquired.

Although it has been more or less organized, as the British Medical Association, for many years, this organization has not been of such a nature that it had much power from a business point of view. It was looked upon much as our academies and associations are here, as a learned society. But the unjust demands of the government on medical service in connection with the Insurance Bill demanded that the profession should organize on a business basis, so that it might be in a position to bargain with its would-be employers, instead of being dictated to by them.

Medical conditions are no doubt different in this country from what they are in Britain, but they are not so much so as may appear on superficial examination to be the case. At least the profession in each state, or if that is impracticable, in each city, should be organized in such a way as to make it possible that medical practice for benevolent societies is conducted under its supervision, and that the fight of the medical profession to obtain adequate remuneration for such work should be controlled by the profession. If the profession can organize itself sufficiently to do these things in Britain, surely it can do it here. It is shown not to be visionary and impracticable.

The government in conceding these demands of the profession lays down certain conditions, the most important of which is that there be a guarantee for improved medical service for the industrial population. In other words, the doctor is to have to pay more attention to each case; he is to be given more pay

for less work but the work will have to be more thoroughly done. This stipulation is of course but right and proper. It is on account of the slipshod, hurry-up methods which club practice is apt to lead up to that such practice is to be condemned. It is for this reason that the majority of the profession looks askance on it and it must therefore be considered as most fitting that the government, in conceding the doctors' demands, should on their part stipulate that they will receive in return what the profession has in the past been compelled to withhold, more care and attention to the club patients. By such a bargain as our British colleagues have made, the medical profession gains not only in a business sense, but it gains in being encouraged to perform its work more thoroughly.

Combined Meeting of the Great Lakes International Pure Water Association and the National Association for the Prevention of Pollution of Rivers and Harbors.

Cleveland was fortunate in having this combined meeting held under the auspices of the local authorities. The membership of the two Associations comprises most of the best sanitarians and water and sewage experts in the United States and Canada, and the opinions brought out in the discussions were especially valuable just now. Among the members are Rudolf Hering, one of the men on the first commission dealing with the Cleveland water supply, George Whipple of New York, whose investigation of the water in 1904 has been the foundation of all subsequent work, A. J. McLaughlin of the Federal Public Health Service, whose sanitary survey of the entire Great Lakes District has recently been completed, and many others who have not been directly concerned with the local problems. The meetings covered two days, and included visits to the water works and chlorinating plant, and to the experimental sewage disposal station, under guidance of Messrs. Schultz and Pratt. Papers were read on various subjects but the whole series turned on the relation of sewage pollution to water borne disease, and the degree of purification necessary as a protection of the latter. While it is not possible to go into details here, one may say that the trend of the papers showed that the opinion of the writers was that sewage pollution along the Great Lakes tended to extend for many miles into the water, and that its areas of distribution depended largely on weather conditions. Also that for the pro-

tection of the people water purification should take precedence over sewage purification, on account of the difficulty on the one hand of adequate protection even with the best of sewage plants, and on account of the greater results obtained for the same money on the other hand. Representatives from the Canadian and the Federal Governments and from many of the larger municipalities were present and shared in the discussions and in the expeditions, and as a result of the meeting it is probable that there will be a consolidation of the two Associations.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Chronic Endocarditis: In the *International Clinics (Volume III, 22nd Series)*, Linsly R. Williams considers the treatment of chronic endocarditis. As to prophylaxis, much can be done to prevent endocarditis by the proper treatment of acute rheumatism. So many cases of the latter condition are neglected because it is difficult for doctor or patient to be impressed with the future danger to the heart valve or muscle by a few fleeting joint pains and an occasional rise of temperature. In instances of this kind the patient is allowed to go about, and at evident risk to his valves or myocardium. That the myocardium must be considered, whether or not a valvular defect is present, has been shown by many authors. The treatment resolves itself into the treatment of the endocarditis and the associated heart muscle by measures looking toward the maintenance of a sufficient balance of reserve force on the part of the heart muscle. In considering the maintenance of this reserve force in hypertrophied hearts, one must always remember that clinically the muscle of the hypertrophied heart associated with some valvular lesion is practically never normal. As to the treatment with drugs, in perfectly compensating hearts it is obvious that drug treatment directed to the heart is far worse than no treatment. Tonics, however, are of value in building up the general body tone. There are a number of border line cases, however, where the patient's compensation is good for the normal demands of life, but where there is frequently a little dyspnea and more fatigue than is normal. In such individuals an occasional dose of digitalis, a dram of the tincture in divided doses for each twenty-four hours for four or five days, or a longer course of ten or fifteen minims three times a day for several weeks, every two or three months, will often be found to be beneficial, and the patient will have a better sense of well-being and be able to do his or her work with better satisfaction. There are also cases which recover promptly during an attack of cardiac insufficiency, with judicious management and the proper use of digitalis, only to become again dyspneic and edematous upon any attempt at exertion. Many of these cases receive much benefit from the persistent use of digitalis. Schmoll more recently calls attention to the need in many cases of the long continued use of digitalis. He found that doses of about 0.1 gram ($1\frac{1}{2}$ grains) can be taken daily without any bad effect, and that when necessary larger doses of 0.15 to 0.2 gram can be taken daily with no unpleasant results. This tonic use of digitalis must of necessity be limited to those cases of cardiac insufficiency who cannot get along without it, and the longer the use of digitalis can be put off, without risk to the patient, the better. The use of digitalis, when unnecessary, is harmful and its use should be reserved for the cases of acute and chronic cardiac insufficiency. As to the indications for digitalis, it is indicated in practically all forms of cardiac insufficiency, but results

are obtained chiefly in those insufficient hearts where the heart muscle has been but little diseased. In many cases, however, where the heart muscle has undergone considerable sclerosis, digitalis is still of value. In dilated hearts, when a partial or complete block is present, digitalis is at times of no value and sometimes actually does harm.

Bismuth: Charles D. Aaron, in the October number of the *American Journal of the Medical Sciences*, writes concerning the healing of gastric and duodenal ulcers with bismuth. Kussmaul considered bismuth the best means of protecting the ulcer, shielding it from mechanical or chemical injury, just as a surgeon bandages a granulating wound in order to allow the natural healing process to take its course undisturbed. In many cases the pathological picture changed with surprising suddenness on the application of bismuth. Patients with old and deep ulcers, who experienced but slight relief from simple irrigations, were suddenly freed from pain; they could partake of food again, enjoyed once more an undisturbed night's rest, recovered their general health in a remarkably short time, and increased in weight. There is no longer a doubt that bismuth has a favorable affect upon the pain and the healing process in gastric and duodenal ulcer. The question now arises how this favorable effect is to be explained, and whether Kussman's premises when introducing the remedy were correct. The research work on this subject, comprising numerous clinical, anatomical and experimental studies, has furnished proof of the fact that the protection afforded by bismuth subnitrate in gastric and duodenal ulcer is both physical and chemical. From clinical observation it would appear that the bismuth deposit remains undisturbed for days upon the gastric mucosa. Fleiner found that up to two or three days after the introduction of bismuth suspensions bismuth remnants mixed with mucus could be recovered by lavage. Bismuth, as shown by the X-rays, can remain in the stomach for that length of time. This coincides with the statements of patients in regard to the length of their pain free periods. After the first introduction of bismuth they are often free from pain during the day and the ensuing night, and sometimes longer. Owing to physical consistence, its fine distribution and its high specific gravity, bismuth forms a layer over the ulcer and mechanically protects the latter from injury. There is no doubt that it also possesses chemical properties, and its chemical action within the stomach and duodenum is 1, antisecretory; 2, astringent; 3, antiseptic. As a matter of fact, bismuth can never be regarded as a substitute for the rest cure in the treatment of ulcer. Its general purpose is to reinforce this treatment, especially when the latter fails, or when the ulcer takes a chronic course, tends to relapse, or gives rise to considerable pain; and furthermore in the treatment of outdoor patients. If in these cases there is hyperacidity, bismuth is so much the more indicated, for it is more effectual in hyperacid cases than in others. Fleiner has discarded the stomach tube and gives bismuth suspensions (10 to 20 grains of bismuth subnitrate in a tumbler of warm water) by the mouth in the morning, on an empty stomach, the latter having been cleansed three-quarters of an hour to an hour previously with about 150 ccm of Carlsbad or Vichy water. The bismuth is given daily, the dose being more or less rapidly increased, reduced or discontinued according to the clinical course.

The Balsams: G. Frank Lydston, in the *American Journal of Clinical Medicine* for October, discusses fads and fashions in the treatment of genitourinary diseases. He states that one of the great disadvantages of all systems of treatment is that inefficiency or evil results are charged up to the method rather than to the individual employing it. The irrigation treatment of gonorrhea, as do all other methods of value, demands judgment, experience and skill in its application, and the method should not be condemned as useless or injurious without due knowledge of the circumstances under which it is admin-

istered and the relative capacity of the individuals putting it into practice. Personally he regrets that the irrigation method has gone out of fashion and is free to say that, when he hears it condemned *in toto* and some newer method of the fad variety extolled, he feels confident that the person who is condemning the one and extolling the other has had very little experience with the proper use of the irrigation method. He admits that he is not practicing the irrigation method as extensively as formerly. Experience has taught him that it is no more to be adopted as a routine system of treatment than is any other method. A drug that is very efficacious at the outset of a gonorrhea may be well tolerated by the gonococci later on; microorganisms, like tissues, acquire tolerance of antiseptics. It has become the fashion on the part of the "up-to-date" urologists to assert the worthlessness of the balsams in the treatment of genitourinary inflammation and irritation. A recent writer very generously conceded that copaiba and cubebs were absolutely worthless. Lydston, however, after thirty-three years' experience, unhesitatingly reaffirms what he has frequently stated, to wit: the balsams are, upon the average, the most reliable of all the remedies we have for allaying irritation of the mucosa of the urinary tract. Indeed, he sometimes questions seriously whether they are not the only remedies which can be relied upon to give even a fair average of beneficial results. He of course recognizes the objections and contraindications to the use of the balsams, and is perfectly familiar with their effects upon the stomach and kidneys. But what remedy of value is not sometimes impaired in its usefulness by a drawback of one kind or another? With reliable preparations of the balsams he has no more doubt of their efficacy than he has of almost any other drug, and he is by no means a therapeutic nihilist. To those who assert the worthlessness of the balsams he would say: Be sure that you have a reliable standard preparation, and that you have given the remedy a fair trial in well controlled cases in number before you pass an opinion as to the efficacy of these drugs.

Pneumonia: Solomon Solis Cohen, in the May number of the *Critic and Guide*, considers the pulse rate-blood pressure ratio as a guide to prognosis and treatment in acute lobar pneumonia. In 1908 G. A. Gibson called attention to the importance of the exact measurement of the blood pressure and record in acute lobar pneumonia. When the pulse frequency curve is higher than the blood pressure curve, there is danger; when the two are approximately equal, the condition is one of doubt, which may incline either way; when the pressure curve is continuously higher than the frequency curve, the patient's condition is favorable and he may be expected to recover. The rule is not infallible, as complications and other factors must be considered. But other things being equal, in probably nine cases out of ten, the prognosis may be based upon the relation exhibited between the two curves. Therapeutically, this relationship serves to indicate the time for the administration of cardiovascular stimulants and to demonstrate their effects. The actual figures of the two curves are of less importance than the distance between them. Let us suppose that on admission the patient has a pulse frequency of 150 (beats per minute) and a systolic blood pressure of 100 (millimeters of mercury). The prognosis is grave, and the indication for the administration of some drug that will reduce the frequency and increase the vigor of the cardiac action, and at the same time tone up the blood vessels, is apparent. The drug that he has found most useful for this purpose is cocain hydrochlorid given hypodermically in doses of 0.03 gram ($\frac{1}{2}$ grain) and repeated every third hour until either the pulse frequency is so far reduced or the blood pressure so far elevated that the two curves approximate. Let us say that in six hours the pressure is elevated to 110 and the pulse frequency declines to 120. The cocain is continued, and in six hours more the pulse frequency has declined to 110 and the pressure has risen to 120. A favorable change has taken

place and the intervals between injections may be lengthened to six hours or more, according to conditions present. In the course of further treatment the pulse frequency and blood pressure may both decline, say the former to 100 and the latter to 110. The condition is still favorable. Later the pulse frequency may decline to 90 and the pressure to 100. Now we have the same pressure as it was in the beginning; but whereas it was then highly unfavorable because the frequency was fifty points higher, it is now comparatively favorable because the frequency is ten points lower. The figures he gives are of course arbitrary and are merely for the purpose of illustration. While the coincident pulse rate is the principal point to be considered, a blood pressure continuously below 100 is, however, if not a danger sign, at least a precautionary signal, even when the pulse frequency is equally low, except during postcritical convalescence or during convalescence after decline of temperature to normal in the absence of crisis. Decline without crisis, it is to be noted, is the rule under treatment by bacterins or by quinin and urea hydrochlorid, as he has reported on several occasions. When cocain alone is insufficient, it may be associated with epinephrin (the adrenal principal) in any one of its commercial forms; about twenty to thirty minims of the 1 to 1000 solution is the ordinary dose by intramuscular injection.

Theophyllin: In the *Archives of Internal Medicine*, for July, Clifford

B. Farr and William H. Welker report on the influence of theophyllin on nitrogenous excretion and partition. Theophyllin was discovered in 1888 by Kessel in an alcoholic extract of tea leaves from which the greater part of the caffein had been removed. Fischer synthesized it from uric acid, while Traube made a more complete synthesis (theocin) ten years ago, from which time its general use dates. Administered in therapeutic doses (0.5 to 1.0 gram daily) it has been found to produce prompt and profuse diuresis, with an increase in the amount of salts excreted. Diuresis may set in within three-quarters of an hour, and usually reaches its maximum on the first or second day, occasionally later. Diuresis may be diminished by the second day, but usually not until the third or fourth day. It ceases almost immediately on withdrawal, but the effect may be renewed by repeating the drug. Caffein and theobromin act more slowly and persistently. It is generally agreed that theophyllin meets its best indication in the passive congestion and edema of heart disease, especially when combined with digitalis. Most clinicians, basing their opinions no doubt on the prevalent theory of its pharmacology, consider it contraindicated in acute nephritis and of doubtful utility in chronic nephritis. Others take the opposite view. In the ascites of cirrhosis and in inflammatory exudates, though not harmful, it is said to be of doubtful efficacy, an opinion which the writers share. The unpleasant or even serious symptoms which occur occasionally have been attributed to disregard of contraindications, to faulty administration, to too profuse diuresis, to other untoward or excessive physiological actions, or to accidental or unrelated causes (e. g., epilepsy). Theophyllin sodio-acetate is said to be more soluble than theophyllin and better tolerated by the stomach. Theophyllin is not a cardiac stimulant, but its effect on the nervous system is similar to that of caffein, though not so pronounced. Its action on the kidneys, though greater, is analogous to that of caffein and theobromin and is shared to a greater or less extent by all the xanthin group. Tigerstedt is credited with the hypothesis that caffein and theophyllin dilate the renal vessels, not through the vasomotors but by a direct action on the vessel walls. This dilatation increases the flow of blood through the kidney and favors the proper nutrition of the secreting cells and brings the necessary material to them.

Coronary Sclerosis: In the *Medical Record* for August 24, I. W. Held considers the treatment of coronary sclerosis, with special reference to gastric symptoms. The object of the treatment is

the attacks when present. To meet the first indication, treatment should twofold: to prevent recurrent attacks during the intervals, and to combat be directed to the etiology of the disease, the first step being to remove the underlying cause. The food should be easily digestible and nonfermentative; small quantities at frequent intervals are in order. Special care should be taken to restrict proteid food, and alcohol and tobacco should be avoided. As to drugs, diuretin and iodids have proved the most useful; the former is given in ten grain doses three times daily for two months; the latter preferably in the form of sodium iodid in ten or fifteen grain doses three times a day for six to eight weeks. In cases which do not tolerate sodium iodid, one of the newer compounds of iodine may be tried. Where blood pressure persists high, some of the nitrites, especially sodium nitrite, as advised by Egbert Lefevre, may be used. To relieve the attacks, a hypodermic injection of morphia is often indispensable, and although its use has been disputed for some time, the general opinion now is that its use is indicated and that there is no danger in administering it. Amyl nitrite by inhalation is of aid, and counter-irritation to the chest and hot mustard footbaths are beneficial.

Anemia: Harlow Brooks, in the *New York Medical Journal* for July 20, treats of the anemic habit. He has no doubt but that every practitioner, in cases of chronic anemia, has often felt impressed by the inadequate manner in which the apparently simple treatment of the anemias is laid down in the textbooks. In these conditions, however, we frequently find it most difficult to get good results, even after the expenditure of a very considerable amount of time and study. This is particularly true of those anemias which are of very long standing, although they may be of very simple and obvious origin. For example, chlorosis, in its early and uncomplicated form responds quite promptly and well to iron medication with simple and sensible directions as to food and hygiene. Where it has persisted for a few months or years and has, as is the rule, become complicated by secondary anemic conditions, as from menorrhagia or purpura, then we have a very different problem. A habit of anemia, the "anemic habit," has been formed and to displace it some extraordinary effort must be exerted to jog Nature out of her accustomed groove or habit of months or years standing. As a class the organic forms of iron seem to him much less universal in result than the inorganic, and he is an earnest advocate of arsenic in chronic anemia, especially where the anemic habit has become established. His conclusions are: that the long standing anemia leads to a condition of the blood forming centers characterized by an indisposition to the restitution of the blood to the normal level, even when the primary etiological factors of the anemia are eradicated. This constitutes an anemic habit. Treatment of these cases is difficult because of this tendency, which must be wholly eliminated or lessened before success can follow. Successful treatment in most cases demands closely detailed study, the direct application of the hygienic requirements in each individual case, and the direct attempt must be made to stimulate the blood forming centers by the development of a tissue demand. Drug treatment or Nature alone in these cases of anemic habit is insufficient, but they must be combined for the successful management of the condition. Treatment must in most instances be prolonged and persistent. Relapses are frequent.

New and Nonofficial Remedies

Since publication of *New and Nonofficial Remedies*, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Plague Bacteria, a *Bacillus pestis* vaccine, marketed in single-dose vaccination. 1 ccm empules containing 5 billion killed *B. pestis*. Also marketed in two-dose vaccination, for one immunization. 1 ccm ampules

containing respectively 1 billion and 2 billion killed *B. pestis*. The second dose is to be injected from seven to ten days later or when the reaction to the first injection has subsided. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

Staphylo-Strepto-Bacterin Mixed is a mixed vaccine marketed in a package of four syringes containing increasing doses of killed *Staphylococcus pyogenes aureus*, killed *Staphylococcus pyogenes albus* and killed streptococcus. H. K. Mulford Co., Philadelphia (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

Diphtheria Antitoxin, U. S. P., marketed in syringes containing 1,000, 2,000, 3,000, 4,000 and 5,000 units; also in bulbs. Diphtheria antitoxin globulin marketed in syringes containing 1,000 units. Cutter Laboratory, Berkeley, Cal. (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

Detre Differential Test consists of tubes containing respectively Tuberculin O. T., Tuberculin B. F. human, and Tuberculin B. F. bovine. Cutter Laboratory, Berkeley, Cal. (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

Tuberculin O. T. (Dilution), von Pirquet's Reaction, marketed in packages containing ten capillary tubes and one ejecting bulb. Cutter Laboratory, Berkeley, Cal. (*Jour. A. L. A.*, Oct. 12, 1912, p. 1377).

Glycerinated Vaccine Virus is a vaccine virus marketed in packages containing respectively five and ten capillary tubes. The Slee Laboratories, Swiftwater, Pa. (Abbott Alkaloidal Co., Chicago). (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

Bismuth Betanaphtholate, Merck, is a nonproprietary article and complies with the tests laid down in New and Nonofficial Remedies for Bismuth Betanaphtholate. Merck & Co., New York (*Jour. A. M. A.*, Oct. 12, 1912, p. 1377).

The following articles have been accepted:

Casoid Diabetic Flour, Thos. Leeming & Co.

Paratophan, Schering & Glatz.

Phenoco, West Disinfecting Co.

Tuberculin B. E., Cutter Laboratory.

Tuberculin B. E., Bovine, Cutter Laboratory.

Tuberculin O. T., Cutter Laboratory.

Tuberculin O. T., Bovine, Cutter Laboratory.

Tuberculin B. F., Cutter Laboratory.

Tuberculin B. F., Bovine, Cutter Laboratory.

Tuberculin T. R., Cutter Laboratory.

Tuberculin T. R., Bovine, Cutter Laboratory.

Tuberculin Ointment (Moro's Reaction), Cutter Laboratory.

Tuberculin for the Thermal Reaction, Cutter Laboratory.

Academy of Medicine of Cleveland

ACADEMY MEETING

The ninety-fourth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, October 18, 1912, the President, J. V. Gallagher, in the chair.

The following were named members of the Nominating Committee: O. T. Schultz, Chairman; W. H. Weir; J. H. Ingersoll, A. S. Storey; H. B. Ormsby.

W. B. Laffer presented a case of peculiar speech difficulty. A girl of 17 noticed a year and a half ago that she had difficulty in speaking, the trouble being marked in the latter part of the day, absent in the morning, and gradually increasing during the day. The patient talks as if the tongue were thick, and often notices painful fatigue in talking. The tongue at times seems a trifle more cyanotic than normal, but otherwise no physical abnormality can be detected. The condition has been considered as possibly one of myasthenia gravis, but a diagnosis is difficult to arrive at because the tongue cannot be satisfactorily tested; no other muscles are involved.

The regular program was as follows:

1, Epigastric Hernia: Its Importance in the Diagnosis of Obscure Abdominal Conditions, by John Phillips.

The symptoms produced by epigastric hernia can simulate many acute and chronic diseases of the organs within the abdominal cavity. From 1 to 5 per cent of all hernias are epigastric. Males are afflicted in the proportion of five to one of females. The majority of the cases occur during the active period of life between thirty and forty. Etiological factors which may be concerned in epigastric hernia are: congenital weakness of fascia and embryological defects; ingrowths of preperitoneal fat into fascial defects; trauma; chronic strain, such as cough, vomiting or sneezing; pregnancy. In most cases the hernia is covered by a peritoneal sac; most frequently the latter contains omentum. Strangulation is uncommon. Many patients have no symptoms. The most constant symptom is pain in the epigastrium, which may be referred to the bladder, testicles, rectum or towards the chest; it is increased by bending backward, by kneeling or by jarring. Sometimes the pain is paroxysmal. Other symptoms complained of are referable chiefly to functional disturbances of the stomach and intestines. The diagnosis is usually easy if a careful physical examination of the abdomen is made. The majority of mistakes in diagnosis are made because epigastric hernia has not been thought of as a possible cause of gastric symptoms. Operation is the only effective treatment, the method being determined by the individual case.

J. E. Tuckerman, in discussion, recalled a case in which fatal embolism followed an operation for epigastric hernia, and asked in regard to the frequency of such a complication.

John Phillips, in reply, said that in the literature he had seen no mention of such a complication.

2, Considerations in the Diagnosis and Treatment of Acute Intestinal Obstruction, by C. E. Briggs.

Most of the cases of acute obstruction from internal, obscure causes may be grouped under three heads. angulation, intussusception and volvulus. Angulation is caused by bands and cords, either congenital abnormalities or altered adhesions following varying grades of peritonitis; grouped in this class also are the internal or concealed herniae into slits, fissures or pouches, including diaphragmatic herniae; this class constitutes nearly 40 per cent of the cases. Intussusception includes about 35 per cent. Volvulus comprises about 15 per cent. Abnormal intestinal contents, including gall stones, foreign bodies, enteroliths and impacted feces, comprise about 5 per cent. A very small remainder includes such conditions as intestinal knots and pressure from extraintestinal tumors.

In the diagnosis of acute intestinal obstruction one must consider, first, the signs and symptoms upon which one is obliged to rely in establishing a primary diagnosis; and second, those factors which afford some reasonable suggestion as to the nature and location of the lesion. The general indications of acute obstruction are pain and sensitiveness, nausea and vomiting, distension, stoppage of the bowels, and sometimes tumor. In addition to such indications of intestinal obstruction itself, one should always carefully consider certain other features in the history and physical examination in connection with a number of well recognized facts regarding the pathology of obstruction. These considerations are of value not only in helping to establish or confirm a diagnosis, but more particularly in aiding to establish with some probability the nature and location of the lesion. The nature of the lesion is in itself an aid in determining the location, as lesions of a certain kind are frequently quite closely confined to certain regions.

Angulation comprises nearly 40 per cent of all cases of intestinal obstruction. It is rather more common in males. About half the cases occur between 15 and 30 years; it is quite rare after forty years, and exceedingly rare under ten years. Internal herniae form a relatively small proportion, the large majority being due to bands and cords, which most

frequently are the results of varying grades of peritonitis. For this reason about 70 per cent of the cases have a history of previous intra-abdominal inflammation, especially in cases of angulation in adults; cases under ten years are almost always due to fetal remains. Most of the cases, about 90 per cent, are in the small intestine, whether from bands and cords or internal herniae. About 80 per cent of the lesions are found in the lower half of the abdomen, and nearly 70 per cent are restricted to the right iliac fossa, as would logically be expected from the frequency of appendicitis as a cause of intraperitoneal inflammation and subsequent adhesions.

Intussusception causes about 35 per cent of the cases of intestinal obstruction. It is a little more common in males, about 60 per cent. A little over 50 per cent of the cases are under ten years of age, and nearly 35 per cent under one year. The presence of a tumor is noticed in about 60 per cent of the cases and is an important point in the diagnosis; it is most commonly felt in the region of the descending colon. Not infrequently the tip of the intussusception can be felt by rectum. The distribution is striking, about 60 per cent being of the ileum into the cecum; about two-thirds of the remainder are of the small intestine into itself; the rest, the small proportion, of the large intestine alone.

Volvulus is the cause of obstruction in about 15 per cent of the cases. This also is most common in males, nearly 80 per cent. Nearly 70 per cent occur after forty years, mostly from forty to sixty years. This variety of obstruction is more liable than the others to be associated with free fluid in the peritoneal cavity. About 50 per cent of the cases occur in the sigmoid flexure, and another 35 per cent near the cecum.

Abnormal intestinal contents cause about 5 per cent of the cases of obstruction, and are due to gall stones most frequently, about 75 per cent. The majority of them occur in women and nearly 90 per cent are over fifty years of age. Gall stones usually lodge in the jejunum or upper ileum; foreign bodies usually in the lower ileum or cecum. Acute obstruction from strictures is usually secondary to chronic obstruction; such strictures occur more frequently in women, and the vast proportion of them in the large intestine, usually in the rectum or sigmoid; about 80 per cent occur after forty years and the lesion is usually found in the lower half of the abdomen.

Of the two considerations, the nature of the obstruction and its location, the latter is of vastly more practical importance, but the probable nature of the obstruction contains the most likely suggestions as to its location. Aside from the relations of nausea, vomiting and distension, the determination of the location of the lesion depends mainly on the probable nature of the lesion, certain lesions occurring for the most part in certain portions of the intestinal tract. In this respect age is the main determining factor. Under fifteen years intussusception is by far the most frequent cause. During the period from fifteen to thirty-five years, angulation from bands and cords is most frequent. From forty years on the two most important factors are volvulus and stricture.

In instances where there seems to be no tangible suggestion as to the nature or location of the lesion, the right lower quadrant of the abdomen is the most promising region for the primary search. The left lower quadrant, the region of the sigmoid flexure, should be next explored, following logically and rapidly to the splenic and hepatic flexures. A general and rapid palpation of the central mass of the small intestine will usually afford some indication to follow when the obstruction has not already been found. Rarely will it be found necessary to make a systematic search of the small intestine, but when this is necessary it should be done from below upward, the ileum being the most frequently involved. The most frequent locations of internal herniae are the pouches of the ileocecal region, the duodenojejunal fossa and the diaphragm.

The ultimate treatment of all instances of well developed obstruction is necessarily operative except in a very small proportion of cases. With the occasional exception of intussusception, we have no efficient means of relieving these cases except by intraabdominal manipulation. Regarding certain so-called preliminary medical features it is necessary to speak with the utmost emphasis. Many cases are driven to inevitable operation by aggravating and injudicious preliminary treatment. The great offending therapeutic measure from which it has been difficult to get away is the cathartic. In cases of suspected or established obstruction what appears at present to be the only rational preliminary treatment is simple in the extreme and is based mainly on the principle of preventing forcible peristalsis and promoting intestinal relaxation, by omitting cathartics of all kinds and by withholding everything by mouth. The next most valuable aid is washing out the stomach. The judicious use of morphin is beneficial in two ways, in diminishing peristalsis and in promoting intestinal relaxation. Until operation is undertaken strict adherence to the principles of the preliminary treatment outlined will delay as far as possible the development of unfavorable conditions, both general in the patient and local in the intestine, and at the same time utilize what chance there may be of spontaneous relief.

3, Ectopic Gestation, by E. Gustav Zinke, of Cincinnati.

Loss of ciliary movements of the tubal epithelium, kinks and contortions of the tube, compression of the tube by tumors, all interfere with the entrance of the ovum into the tube or with its transmission after it has entered the tube, so that the ovum may become impregnated within the ovary or within the tube. It is doubtful if true abdominal pregnancy ever occurs. Ectopic gestation is now known to be more frequent than was formerly supposed.

In tubal pregnancy the phenomena following the lodging of the impregnated ovum are identical with those of uterine pregnancy. In rare cases the tube is able to distend until the end of pregnancy. More frequently the villi penetrate and weaken the tube wall early. Most frequently the ovum develops in the ampulla, more rarely in the isthmus, and least frequently of all in the interstitial or intrauterine portion of the tube. In the majority of cases the ovum dies early and the ectopic fecundation is followed by no harmful effects. In other cases the ovum may undergo longer development, which may be followed by rupture, either into the lumen of the tube or into the peritoneal cavity. Rupture is most frequent in the second and third months. During the first two months there is little in the course of tubal pregnancy that is characteristic and the diagnosis is therefore rarely made during this stage.

Tubal abortion, when it occurs, may be marked by pain and tenderness. It is frequently mistaken for uterine abortion. Swelling may be felt to one side of or behind the uterus.

In ruptured tubal pregnancy hemorrhage predominates the clinical picture. It may be sudden, or develop slowly, leading to marked anemia. Even in those cases in which a sudden hemorrhage is the first symptom that calls attention to the possibility of tubal pregnancy and rupture, evidences are often found at operation that there have been earlier, slighter hemorrhages which have not given rise to alarming symptoms.

In the later stages of tubal pregnancy operative treatment is best, although the operation is technically one of the most difficult in abdominal surgery. If the tumor is free of adhesions the entire sac may be radically removed. If adhesions are present, the fetus alone is removed, gauze packing causing the expulsion of the membranes. Diagnosis before rupture is always an indication for operation. After rupture a decision as to when to operate is more difficult. Because there seems to be a tendency toward spontaneous cessation of hemorrhage it is inadvisable to operate hurriedly and immediately, without due regard to sepsis and proper surroundings.

R. E. Skeel, in opening the discussion, said that he was much interested that there had been brought out the repetition of hemorrhages in tubal pregnancy. He believed that in the cases with fatal, cataclysmic hemorrhages, there have usually been previous smaller hemorrhages, and in these the diagnosis should have been made earlier. He disagreed with the speaker in regard to delay in operation and believed that ruptured ectopic gestation always requires immediate operation. So long as we do not know when the next hemorrhage will occur operation should be performed as soon as a diagnosis is made.

E. Gustav Zinke, in closing the discussion, said that differences in the decision as to what to do may be due to differences in the way in which conditions are described. No patient will bleed to death immediately, within an hour or two, from the sudden hemorrhage of a ruptured ectopic pregnancy. With all the symptoms of internal hemorrhage and shock present, no time is to be lost, but due regard must be had for asepsis. He had never seen a case in shock, unconscious, with no radial pulse, which, operated upon, recovered, and he believed that many of the fatalities are due to operation on the spur of the moment. He has, on the other hand, seen cases in which the patient's condition improved while preparations for operation were being made, and from such cases had been forced to conclude that proper preparations should always be made before operation is attempted.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-first regular meeting of the Section was held at the Cleveland Medical Library, Friday, October 25, 1912, the Chairman, W. E. Bruner, in the chair.

W. E. Bruner presented a case of probable sarcoma of the choroid. Four weeks before the patient presented himself he noticed interference with vision. Examination shows a rounded tumor bulging into the vitreous. The tension is decreased. The tumor is apparently growing rapidly.

W. C. Tuckerman presented a case of brain tumor. The patient, a man aged 53, complained, in March of the present year, of severe pain extending over the right side of the head to the nape of the neck. He had had several attacks of vertigo severe enough to cause falling and a few days before he was first seen there was temporary loss of sensation of the right side of the face. The patient's trouble began about one year previously, at which time trouble with vision had led him to be refracted. There was no history of lues and antileptic treatment had not been followed by improvement. The blood pressure at the first examination was 126; there were no paralyses, the Romberg sign was negative, the knee reflexes were present, and the pupillary and ocular movements were normal. The vision with glasses was: R, 20/40; L, 20/30. The fundus showed marked choked disc on both sides and a hemorrhage at the lower edge of the left disc. A diagnosis of intracranial pressure, the exact cause of which could not be determined, was made. Radiographic examination was negative. A decompression operation was done by G. W. Crile in April. A marked cerebral hernia rapidly developed and in August vision with glasses was: R, 20/30; L, 20/20. The hemorrhage had disappeared and the choking of the discs had become much decreased. During October the patient presented himself again, with his earlier symptoms once more present. He has had attacks of pain and of vertigo. Choked disc is again well marked. Vision with glasses is: R, 20/40; L, 20/40. There are not yet any paralyses and there are no localizing symptoms.

The regular program was as follows:

- 1, Report of a Case of Calculus of the Submaxillary Salivary Gland with Exhibition of Specimen, by W. B. Chamberlin. For two months before the patient presented himself there had been present a tumor of the lower jaw, which increased in size during eating and upon the sight

of food. The diagnosis of calculus was confirmed by the X-ray, which showed one larger and several smaller stones. The duct could not be probed because of its abnormal course and at operation the stone could not be found by probing the gland tissue with a needle. The gland itself was therefore removed. Embedded in its substance, not lying in the duct, was a faceted stone of considerable size.

W. J. Abbott, in discussion, said that some eight or nine months ago he had had a case in which he had been able to deliver a stone, about one-half the size of that shown, through the duct.

2, Suturing after Submucous Resection, by W. J. Abbott. Hemorrhage after submucous resection depends upon the operation rather than upon the after treatment. To prevent hemorrhage some recommend merely permitting the mucosa to retract, rest in bed being depended upon to prevent bleeding. Others advise packing the nostrils, but the disadvantages of this procedure are the discomfort and the accumulation of secretions. In suturing after resection several varieties of stitch have been recommended. The writer had found a continuous suture of plain or chromicized gut most satisfactory, the suture zig-zagging back and forth until all points are closed. The advantages of suturing are so great and so evident that packing seems inadvisable; the comfort of the patient is much greater and the hemorrhage less. The disadvantage is the time required for the operation. The danger of perforation following suture would seem to be due to too much tension rather than to the method itself (To be published in full).

W. H. Tuckerman, in discussion, said that the great disadvantage of packing is that the packing is put in while the tissues are contracted. With the subsequent swelling of the tissues the packing becomes too tight and produces great discomfort. He now packs only one side and that very lightly and removes the pack within twenty-four hours. Suturing would seem to be a method worthy of trial.

Myron Metzenbaum asked whether the operations in which suturing had been done involved the cartilage alone or the bone also. By most methods of incision in resection the mucosa comes back with sufficient tautness, so that neither suturing nor packing is necessary. When he finds it necessary to pack he uses a very small pack, of the cigaret drain type, in the operated side only, and removes this after six to eight hours.

W. J. Abbott said that practically all his operations had involved the bone.

3, Report of Three Cases of Foreign Body in the Eye, by C. C. Stuart. In the first case, a lad of 11 years, a small vertical wound through the sclera was produced by a fragment from an exploding dynamite cap. Ophthalmoscopic and X-ray examination yielded no results because of the great amount of hemorrhage present. A later radiograph localized the foreign body, which was removed under general anesthesia. Since healing there is slight pulling of the pupil toward the site of the wound of entrance. In the second case the injury was due to a sliver of steel from a pneumatic hammer. When seen twenty-four hours after the injury the sliver was found embedded in the cornea. Removal by means of the magnet was followed by good recovery. In the third case a fragment from a hammer had caused marked conjunctival hemorrhage. The piece of steel was found embedded in the conjunctiva and was easily extracted with the magnet. (To be published in full.)

W. B. Chamberlin reported briefly upon the case of a young woman, 20 years old, who three weeks previously suddenly had an attack of tinnitus while reading. This was followed by vertigo, which was very marked for three days, during which time relief could be obtained only by lying upon the abnormal side. A diagnosis of hemorrhage into the labyrinth was made. The patient now has some hearing in the ear, indicating probably that the hemorrhage is being absorbed.

W. H. Tuckerman asked whether there was anything in the history to account for the hemorrhage. He wondered whether the condition

might not be analogous to the hemorrhage into the fundus of the eye, also coming on apparently without cause.

CLINICAL AND PATHOLOGICAL SECTION

The eighty-eighth regular meeting of this Section was held at the Cleveland Medical Library, Friday, November 1, 1912, the Chairman, H. L. Sanford, in the chair.

The following were elected members of the Nominating Committee: A. S. Storey, Chairman; W. H. Humiston; W. E. Lower.

The following program was presented:

1, A Case of Atypical Chancre, Simulating Sarcoma, by A. N. Dawson.

A man aged 47 presented himself complaining of swelling of the prepuce. Six weeks previously he had noticed a small pimple the size of a wheat kernel on the inner surface of the prepuce. This brushed off without bleeding, leaving a slightly indurated area. Later the inner layer of the prepuce became swollen and thickened to such a degree as to interfere with retraction. A circumcision was done and at the time of removal the inner surface of the prepuce showed no macroscopic ulceration. The microscopic diagnosis was small round cell sarcoma. The incision wound healed by first intention and healing was followed in about six days by the appearance of a rather atypical cutaneous rash. At this time the Wassermann reaction was strongly positive.

O. T. Schultz, in discussion, said that the lesion was not only quite atypical in the gross, in that it was so diffuse as to involve the entire inner layer of the prepuce and in the absence of any visible ulceration, but also in its histological appearances. The original tissue has been replaced by a tissue containing only a very slight amount of stroma, upon which lie small round cells, not of the lymphoid type, but with the characteristics of very young, undifferentiated connective tissue cells. Through this tissue run thin walled, new formed blood vessels. In the deeper tissue the larger, older vessels show the characteristic perivascular inflammation. In the sections taken the epidermal layer is not ulcerated; the papillae are obliterated by the inflammatory transformation of the stroma. Shortly after the specimen presented was received another chancre of the same unusual diffuse type was received through the kindness of Doctors Wille and Clulow of the Marine Hospital. In this case both layers of the prepuce had undergone the diffuse inflammatory thickening and the intervening areolar tissue was transformed into a thick layer of solid cellular tissue.

F. C. Herrick mentioned a case seen some years ago, a man with an indurated, ulcerated area on the tongue. The clinical diagnosis was epithelioma and microscopic examination resulted in a similar diagnosis. Resection of part of the tongue was followed some days later by the appearance of a typical skin rash, which disappeared under treatment with mercury.

2, A Clinical Report on the Complement Fixation Test in Gonorrhea, by H. L. Rockwood.

The conclusions based upon the study of the complement fixation reaction in gonorrhea in a series of 193 cases were as follows: The test seems to be of great clinical value in cases in which active inflammation still persists. After cure the reaction disappears in a varying, but relatively short, period. A positive reaction has been secured in no case in which gonorrhea could be excluded. (To be published in full.)

W. E. Lower, in discussion, said that one of the important problems for the clinician is the determination of the actual cure of cases of gonorrhea. In the solution of this question the fixation test is of great value. In joint cases of doubtful nature the test also has value.

H. L. Sanford said that in chronic urethritis the physician often does not know when he is finished with his treatment and the greatest value of the fixation reaction is in deciding this point.

H. L. Rockwood, in reply to a question as to the value of the test in cases where gonococcus vaccines had been employed, said that undoubtedly the diagnostic value of the reaction would be invalidated, unless a positive finding is obtained before the use of the bacterins is begun.

3, Conservative Surgical Methods in Operating for Stone in the Kidney, by W. E. Lower.

For proper surgery in cases of renal colic every diagnostic aid must be used; a diagnosis of stone is not justifiable upon the history alone: Of the greatest aid is the X-ray, but skill in the making and in the interpretation of the radiographs is necessary. In a few cases the radiographic examination fails to reveal the presence of stones which are later found to be present. For relief operative treatment must be relied upon, but operative removal should not be attempted at once, since in some cases the stone can be made to pass by the use of large amounts of water. In calculi in the pelvis incision of the pelvis, with in most cases suture of the wound, is preferable to nephrotomy. In stones embedded in the kidney substance nephrectomy is to be preferred to nephrotomy. After pyelotomy the danger of permanent fistula is less than after nephrotomy. Lacerations of the pelvis due to irregularities of the stone can be repaired by plastic operations which make use of perirenal fat and surrounding tissues. In cases in which nephrotomy is indicated the chief danger is hemorrhage.

Most trying are cases of bilateral calculus. In these the kidney substance must be spared as much as possible, the operation of preference being again pyelotomy. If the kidney function test shows one kidney to be more active than the other, the less active and more involved one should be operated first. In cases in which the stone cannot be delivered by pyelotomy but can be palpated, the incision should be one which goes down directly upon the stone rather than one which splits the kidney.

G. W. Crile, in discussion, said that he had found, since his attention had been called to the matter by Doctor Lower, that nephrectomy is preferable to nephrotomy in cases of stone with infection. Another point brought out is that in cases of bilateral stone it is better to choose the more damaged, infected organ for primary operation, in order to relieve the better one of an excessive burden.

4, The Value of Cystoscopy in the Diagnosis of Renal Tuberculosis, by F. C. Herrick.

Statistics show that in early cases renal tuberculosis is unilateral, whereas with longer duration both kidneys tend to become involved. Early diagnosis and operation should, therefore, be the aim of the surgeon. Early diagnosis of unilateral renal tuberculosis can be accomplished by cystoscopy only. The clinical evidences of the condition are often misleading, since pain and tenderness may be referred to the sound, hyperemic, functionally hypertrophied organ. The complete cystoscopic examination should include: inspection of the posterior urethra, the bladder and especially the trigone and ureteral orifices; catheterization of one or both ureters depending upon the necessity of the case; a thorough examination of the urine from the bladder and one or both ureters; the estimation of function by one of the recognized tests. The following conclusions are drawn: 1, With increased urinary frequency and pyuria from any cause, if persisting more than two weeks, a routine examination for renal tuberculosis should be made. 2, A cystoscopic examination should be made before every operation upon the kidney. 3, Accurate diagnosis both as to localization and extent of disease is possible only by a cystoscopic examination. 4, The mortality in operation for renal tuberculosis has been reduced from an almost prohibitive percentage to 4 or 6 per cent by accurate early diagnosis.

F. E. Bunts, in discussion, said that we are greatly indebted to cystoscopy for the determination of bladder, ureteral and kidney troubles, although in some cases cystoscopic examination is not available or shows nothing. He agreed that nephrectomy is a surprisingly safe operation.

In many cases tuberculous disease elsewhere is not a contraindication to operation upon the tuberculous kidney.

W. H. Weir, in regard to operation upon a tuberculous kidney when there is tuberculosis elsewhere, recalled a case in which there was also joint and spinal tuberculosis. Removal of the kidney was followed by improvement, although recently tubercle bacilli have again appeared in the urine. Cystoscopic examination has been refused, so that it is not possible to say whether the bacilli come from bladder ulcerations or from the other kidney.

W. E. Lower said that in exceptional cases we cannot rely upon cystoscopic examination alone, but must have the separated specimens of urine. In some cases when the bladder is markedly contracted cystoscopic examination gives little help. An important point brought out is the fact that the compensatorily hypertrophied kidney may give rise to the more severe, painful symptoms. In tuberculosis of the kidney many of the disagreeable symptoms are referable to the bladder, the improvement after removal of the kidney being striking.

F. C. Herrick, in closing, said that it was important for the preservation of the sound kidney tissue that there be no diseased foci elsewhere in the body, to damage the sound tissue with toxins.

EXPERIMENTAL MEDICINE SECTION

The sixty-third regular meeting of the Section was held at the Cleveland Medical Library, Friday, November 8, 1912, the Chairman, F. C. Waite, in the chair.

The following were constituted a nominating committee. A. S. Storey, Chairman; O. T. Schultz; R. K. Updegraff; J. D. Pilcher; H. N. Cole.

The program was as follows:

1, *Verruga Peruviana* and its Successful Transmission to Apes, by H. N. Cole.

Verruga Peruviana is a severe disease of parasitic origin endemic over a certain inland portion of Peru and is remarkable for an intermittent, remittent or irregular type of fever that precedes, accompanies or follows a cutaneous eruption; for a rapid and progressive anemia with involvement of the lymphatics, liver and spleen; and for certain well known gastric, vascular and nervous disturbances. In the case of Jadassohn's, perfectly well as shown by thorough physical examination except for the cutaneous tumors, there was success in transmitting the disease to apes to the third generation. Further inoculations were unsuccessful inasmuch as the third monkey died shortly after the appearance of the tumors so that further experiments could not be made with the lesions. And further attempts with the almost healed tumors from the second ape were unsuccessful, as the growths used were almost healed lesions. The monkeys appeared to have no symptoms except the cutaneous eruption at the inoculated points and in the gross they resembled those of the patient very closely. This was also true of the histological picture which consisted of a granulomatous-like tissue made up numerous blood capillaries, small and large mononuclear and polymorphonuclear leucocytes, plasma cells, fibroblasts and free red blood cells. None of the organisms mentioned by different men as pathognomonic for the disease were found.

2, The Minute Volume and the Alveolar Air in Pulmonary Emphysema, by C. F. Hoover.

In a study of cases of emphysema it has been found that different cases behave in different ways. Some never have air hunger, but cyanosis may be marked; in other cases air hunger may be more or less constantly present, and some cases may be associated with attacks of asthma. The work consisted of the determination of the relation of the amount of alveolar air to the minute volume and of the estimation of the carbon dioxide in the alveolar air.

As the result of these studies the indications are that in emphysema the patient suffers from impaired ventilation and not from impairment of the lung as an organ of external respiration. In the condition the per cent of alveolar air is increased. This increase can be brought about only by an increase in the dead air space between the infundibula and the larynx. This would seem to be due to bronchiolar atony and dilatation. Emphysema would appear to be the result of pulmonary atony, rather than of bronchiolar spasm.

J. J. R. Macleod, in discussion, said that it is interesting that the work of Haldane, considered to have only theoretical or physiological interest, should be so valuable and so directly applicable to the clinical study of respiratory conditions. A question which comes up is how emphysematous patients can exist at all with so high a carbon dioxide tension in the alveolar air. One of Haldane's most important findings has been that in normal individuals the carbon dioxide tension remains uniform no matter what the barometric conditions may be. The least increase produces very great respiratory distress. It would seem that we must conclude that in emphysematous patients the threshold of the respiratory center to carbon dioxide has been markedly lowered.

R. K. Updegraff asked the speaker's definition of emphysema and what he would include under emphysema; and what is the effect of the obliteration of capillaries in the condition.

C. F. Hoover, in closing the discussion, said that in a patient with asthma, emphysema and cyanosis the increased percentage of alveolar air was even greater during the attacks of asthma than in the later period when the asthma had disappeared. This would seem to indicate that during the asthmatic attack the dead air space is increased even more above the normal than is the case between the attacks. Whether some asthmas may be due to bronchial spasm has not been determined; in all the cases studied the dead air space has been found increased during the asthmatic attack, indicating a bronchiolar atony more marked during the attack than at other times. It is difficult to define emphysema. It can be conceived of as purely neuromuscular affair or as an organic condition. Until the present studies were begun he had felt that emphysema is due to bronchiolar spasm, the generally accepted view. But the work has shown, quite clearly, an increase in the dead air space during emphysema and a still greater increase during asthma, indicating in every case thus far studied atony rather than spasm. We must consider the possibility of hypertonic rather than hypotonic emphysema, but thus far the former has not been encountered.

COUNCIL MEETING

The Council of the Academy met Wednesday, October 16, 1912.

The resignation of W. A. Knowlton was accepted.

In regard to a communication from H. N. Cole the Secretary was instructed to ascertain to what extent the Academy had been to expense during Doctor Cole's absence and to adjust the matter upon that basis.

C. E. Ford presented a communication from Mr. Benjamin A. Gage concerning matters which should be brought before the Legislative Committee of the Academy. The communication was placed on file.

A. S. Storey reported for the Civic Committee, advising that the Academy should cooperate with the Anti-Saloon League and appoint a member to serve on the proposed commission for investigating the causes of disease, delinquency, etc. The recommendation was approved and the Civic Committee was directed to suggest a member for the position.

A communication was received from Attorney John A. Cline, enclosing a petition for initiating a law to give to the wives of men in the penitentiary the earnings of their husbands while there, and asking the Academy to help circulate the petition. The Secretary was directed to give his aid in placing the petition where it could be signed by members attending the meetings.

The death of the Vice-President, Frederick W. Davis, on September 13, was reported to the Council.

Book Reviews

A Text-book of Practical Therapeutics. With especial reference to the application of remedial measures to disease and their employment upon a rational basis. By Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Fourteenth edition, thoroughly revised. Octavo, 984 pages, with 131 engravings, and 8 full-page colored plates. Cloth, \$4.00 net. Lea & Febiger, Philadelphia and New York, 1912.

This is the fourteenth edition of Hare's Therapeutics, which is so universally recognized as one of the leading works on the subject that it scarcely requires an extended notice. It is, as heretofore, eminently practical and embodies much of Doctor Hare's personal experience, covering quite completely the entire therapeutic field. It consists of four subdivisions, and the opening one of nearly fifty pages is devoted to general therapeutic consideration. Drugs claim the second subdivision of nearly five hundred pages and all the agents of value, including those of recent addition, are here fully considered. Remedial measures other than drugs comprise the third, while the fourth, on the treatment of disease, presents quite fully, though concisely, the clinical side, the chapter upon heart disease being especially satisfactory. The work contains the latest and best upon the subject and will be found of daily aid to physician as well as student.

J. B. M.

Auto-intoxication and Disintoxication. An Account of a New Fasting Treatment in Diabetes and Other Chronic Diseases. By Dr. G. Guelpa (Paris). Translated by F. S. Arnold, B. A., M. B., B. Ch. (Oxon). With an Introduction by the Translator and a Chapter on the Use of the Method in the Treatment of Morphine Addiction, by Oscar Jennings, M. D. (Paris). Cloth, 152 pages, \$1.25 net. Rebman Company, New York, 1912.

In this book of 152 pages the translator becomes a coauthor in a twenty-seven page introduction. Doctor Jennings closes with sixteen pages on the application of the method in drug addiction and alcoholism. In the intervening 109 small pages of coarse print the author, that is, Guelpa, presents his treatment of autointoxication by disintoxication. The method of disintoxication consists in fasting plus abundant purgation (a whole bottle of Hunjadi Janos water at one time). Fasting kills off the less viable, less resistant cells and places the organism in a condition to reproduce fresh cells more efficient for their task of protecting the organism against various infections and intoxications of all kinds. The action of the purgation (which must be complete) is to prevent the headache and painful sensations which usually accompany hunger, and to carry off effete matter. Case reports of diabetic patients are given, purporting to show the efficiency of the treatment. The amount of urine and of sugar is said to be reduced. Such active purgation certainly might be expected to reduce the amount of water excreted by the kidneys and deviate its excretion to the bowel. That starvation will reduce the amount of sugar in the urine and that subsequently, upon feeding again, it will have been found that the tolerance to sugar has been raised, is nothing new. It is the very essence of the von Noorden treatment. The novelty lies in the combination of fasting with catharsis. *A priori* one cannot say whether purgation would annihilate the pangs of gnawing hunger or not. Certainly it might well be left to the diabetic himself to decide whether he would prefer to lose his water *per urethram* or *per rectum*.

C. H. L.

Acknowledgements

Practical Medicine Series. Vol. VI, Series 1912. General Medicine. Edited by Frank Billings, M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago; and J. H. Salisbury, M. D., Professor of Medicine, Chicago Clinical School. Cloth, 350 pages, 23 figures, 2 plates, \$1.50. The Year Book Publishers, Chicago.

Practical Medicine Series. Vol. V, Series 1912: Obstetrics. Edited by Joseph D. DeLee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School; with the collaboration of Herbert M. Stone, M. D. Cloth, 229 pages, 3 figures, 5 plates, \$1.25. The Year Book Publishers, Chicago.

A Manual of Surgical Treatment. By Sir W. Watson Cheyne, Bart., C. B., D. Sc., LL. D., F. R. C. S., F. R. S., Hon. Surgeon in Ordinary to H. M. the King; Senior Surgeon to King's College Hospital; and F. F. Burghard, M. S. (Lond.), F. R. C. S., Surgeon to King's College Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green. New edition, entirely revised and largely rewritten. In five volumes. Volume III: The Treatment of the Surgical Affections of the Joints, the Spine, the Head and the Face. Cloth, 575 pages, 271 figures, \$6.00 net. Lea & Febiger, Philadelphia and New York, 1912.

A Treatise on Fractures and Dislocations. By Lewis A. Stimson, B. A., M. D., LL. D., Professor of Surgery in Cornell University Medical College, New York. New (7th) edition, thoroughly revised. Octavo, 930 pages, with 459 engravings and 39 plates. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York, 1912.

A Manual of Auscultation and Percussion, embracing the Physical Diagnosis of Diseases of the Lungs and Heart, and of Thoracic Aneurysm, and of other parts. By Austin Flint, M. D., LL. D., Late Professor of Medicine and of Clinical Medicine in the Bellevue Hospital Medical College, etc., New York. Revised by Haven Emerson, A. M., M. D., Associate in Physiology and in Medicine, College of Physicians and Surgeons, Columbia University, New York. Cloth, 12 mo, 361 pages, illustrated, \$2.00 net. Lea & Febiger, Philadelphia and New York, 1912.

An Introduction to the Study of Infection and Immunity. Including Serum Therapy, Chemotherapy and Serum Diagnosis. By Charles E. Simon, M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. Cloth, octavo, 301 pages, illustrated, \$3.25 net. Lea & Febiger, Philadelphia and New York, 1912.

The Practitioner's Visiting List for 1913. An invaluable pocket-sized book containing memoranda and data important for every physician, and ruled blanks for recording every detail of practice. The Weekly, Monthly and 30-Patient Perpetual contain 32 pages of data and 160 pages of classified blanks. The 60-Patient Perpetual consists of 256 pages of blanks alone. Each in one wallet-shaped book, bound in flexible leather, with flap and pocket, pencil, with rubber, and calendar for two years. Price by mail, postpaid, to any address, \$1.25. Thumb-letter index, 25 cents extra. Descriptive circular showing the several styles sent on request. Lea & Febiger, Publishers, Philadelphia and New York.

The Medical Record Visiting List for 1913. Morocco, for 60 patients a week, with or without dates, \$1.50; for 30 patients a week, with or without dates, \$1.25; for 90 patients a week, with dates only, \$2.00. William Wood & Company, 51 Fifth Avenue, New York.

Medical News

Army Medical Corps Examinations: The Surgeon General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on January 20, 1913, at points to be hereafter designated. Full information concerning these examinations can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. The examination in subjects of general education (mathematics, geography, history, general literature, and Latin) may be omitted in the case of applicants holding diplomas from reputable literary or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School. In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of The Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present thirty-five vacancies in the Medical Corps of the Army.

Public Drinking-Cup Prohibited: An order promulgated October 19 by the United States Public Health Service prohibits the use of the public drinking-cup on rail or water common carriers engaged in interstate commerce. All water used for drinking purposes on trains and vessels on interstate runs must be certified as to purity and water containers must be scalded with steam at least once a week.

The Fifth Latin-American Congress is to be held at Lima, Peru, in August, 1913.

Newly Elected Officers of the International Association of Medical Museums are: President, A. S. Warthin, Ann Arbor, Michigan; Secretary, Maude E. Abbott, Montreal, Quebec.

The Ohio Valley Medical Association held its fourteenth annual meeting at Evansville, Indiana, November 14 and 15.

The Health and Charities Department of Philadelphia has asked for an appropriation of \$6,151,704 for 1913.

The Indianapolis "Sun" has announced that it will exclude from its advertising columns the announcements of medical practitioners engaged in objectionable practice. The action has received the commendation of the Marion County Medical Society.

Union of the Hospitals with the Medical Schools of New York is recommended by Chancellor J. H. MacCracken of New York University in his report for 1912. He criticizes the control of visiting physicians and surgeons by a board of trustees, and urges that a definition of their privileges and appointments be placed in the hands of the university faculties. He would place the appointments and control of the force of each municipal hospital in the hands of those who hold the chairs in the medical

faculty of the school connected with that hospital. To do this the university should be able to provide a salary sufficient to make teaching, research and the conduct of a hospital ward the main issue, and private practice secondary.

A Conference of Secretaries of State Societies was held at Chicago, October 23 and 24, under the auspices of the Committee on Uniform Regulation of Membership of the American Medical Association.

The Lane Medical Library of Leland Stanford Junior University was dedicated at San Francisco, November 3.

The American Surgical Association has appointed a Committee consisting of William L. Estes, South Bethlehem, Pennsylvania; Thomas W. Huntingdon, San Francisco, California; John B. Walker, New York City; Edward Martin, Philadelphia; and John B. Roberts, Chairman, 313 S. 17th Street, Philadelphia, to report on the Operative and Nonoperative Treatment of Closed and Open Fractures of the Long Bones and the value of radiography in the study of these injuries. Surgeons, who have published papers relating to this subject within the last ten years, will confer a favor by sending two reprints to the Chairman of the Committee. If no reprints are available, the titles and places of their publication are desired.

The Ohio Society for the Prevention of Tuberculosis has passed a resolution asking that a special appropriation to the Ohio State Board of Health of \$50,000, i. e., \$25,000 per annum, be asked of the Eightieth General Assembly for the purpose of establishing a Division of Tuberculosis as an integral part of the present organization of the Ohio State Board of Health.

Ohio District Meetings: The Tenth Councilor District held its annual meeting at Mount Gilead, October 15. The program was as follows: My Emergency Bag for 1913, by F. C. Larimore, Mount Vernon; Epidemic Cerebrospinal Meningitis, by J. D. Dunham, Columbus; Hyperthyroidism, by E. J. Wilson, Columbus; Purgatives in Acute Abdominal Disease, by C. S. Hamilton, Columbus. Officers elected were: President, J. H. Jackson, Edison; Secretary, J. J. Coons, Columbus.—The Seventh Councilor District met at Coshocton, October 31, for the following program: The Clinical and Chemical Study of Emphysema, by C. F. Hoover, Cleveland; Diphtheria, by P. C. Hartford, Columbiana; Vaccine Therapy, by J. S. McClellan, Bellaire; Use and Place of Caustics in the Treatment of Malignant Disease, by S. B. McGavran, Cadiz; Preservation of Hearing, by L. B. Larimore, New Philadelphia; Shockless Operations by Anoci Association, by G. W. Crile, Cleveland.—The Sixth Councilor District met at Ashland, November 12, the program being as follows. Burns and Their Treatment, by O. J. Powell, Ashland; Typhoid Fever, by A. B. Campbell, Orrville; Contusions of the Abdominal Wall, Without External Signs of Violence, by A. F. House, Cleveland; Early Symptoms and Treatment of Appendicitis, by J. C. Stevens, Mansfield; Cataract, by H. G. Sherman, Cleveland; The Paranoiac and His Relation to Society, by W. W. Leonard, Akron; Prevention of Tuberculosis, by O. W. McMichael, Chicago.—The Eighth Councilor District held its ninth annual meeting at Marietta, November 6 and 7. The following program was presented: Peliosis Rheumatica, by J. H. J. Upham, Columbus; Operation in Goiter, by Wm. Hamilton, Columbus; Autointoxication, by C. A. Gallagher, Marietta; Sputum Examination as an Index to Diseases of the Upper Respiratory Tract, by H. R. Geyer, Zanesville. The following officers were elected: President, H. R. Geyer, Zanesville; Secretary, J. R. McDowell, Zanesville.

The Tri-County Medical Society, composed of Hancock, Wood and Seneca Counties, met at Tiffin, October 24. Dan Millikin, of Hamilton, presented an address, A Physiologist's Review of New Problems in Education.

The Ottawa County Medical Society held its annual fish dinner at Port Clinton, October 31. Thirty-two were present, including visitors from Toledo and Cleveland.

The Piqua Physicians' Protective Association has caused the arrest of Earnest Motter for the alleged misappropriation of \$600 belonging to the association.

Contagious Diseases: At different periods during October and November schools have been closed because of diphtheria at Dundee, Spring Hill, Dayton, Lowellville, Troy, Geneva, Pierpont and Bridgeport; because of scarlet fever at Minerva; and because of small pox at Tiffin.

Deaths

Ward S. Hudson, Cleveland University of Medicine and Surgery, 1877, of Cleveland; died September 30, aged 66.

Melvin Gregg, Columbus Medical College, 1881, of Salineville; died September 21, aged 58.

John Darragh, Eclectic Medical Institute, Cincinnati, 1895, of Cincinnati; died October 14, aged 57.

Wilbur Solomon Rudy, Ohio Medical University, Columbus, 1897, of Lima; died October 18, aged 46.

Albert Frederick Hyde, Rush Medical College, 1882, of Shelby; died in Columbus, October 23, aged 53.

Hiram L. True, Eclectic Medical Institute, Cincinnati, 1870; of McConnellsville; died in Columbus, October 22, aged 67.

William Johnson, Medical College of Ohio, Cincinnati, 1883, of Cincinnati; died October 20, aged 56.

Thomas E. Rinehart, Pulte Medical College, Cincinnati, 1885, of Roseville; died October 19, aged 50.

Thomas Benton Marquis, Bellevue Hospital Medical College, 1877, of Lisbon; died November 5, aged 59.

Charles C. Knapp, University of Tennessee Medical Department, 1893, of Zanesville; died November 5, aged 48.

Louis S. J. Gessner, of Fremont, died November 4, aged 82.

Arthur M. A. Browne, of Cincinnati, died October 15, aged 70.

Oscar Wolcott, Physiomedical College of Medicine and Surgery, Chicago, 1896, of Bradner; died October 13, aged 61.

Samuel Simpson, formerly of Ravenna, died in the Soldiers' Home at Sandusky, October 14, aged 76.

Otto William Mayer, Medical College of Indiana, 1881; of Hamilton; died October 31, aged 52.

Ernest E. Brown, Western Reserve Medical College, 1901; of Oberlin, formerly of Cleveland; died in St. Luke's Hospital, Cleveland, October 26, aged 37.

Alden H. Martin, Cleveland University of Medicine and Surgery, 1896; of Norwalk; died November 10, aged 42.

Joseph T. Miller, retired; of Canton; died November 12, aged 82.

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Persistent Priapism in Splenomyelogenous Leukemia

By H. O. RUH, M. D., Resident Pathologist, The Lakeside Hospital,
Cleveland

(From the Pathological Laboratory of The Lakeside Hospital)

Occurrence: From the not infrequent case reports of myeloid leukemia found in the literature the impression is gained that at least in chronic cases a high percentage have at one time or another during life had priapism. It occasionally happens that the first symptom noticed by the patient referable to leukemia is a persistent priapism. On the other hand, leukemic priapism most commonly occurs as a late symptom.

Scheuer¹, in collecting cases of persistent priapism from various causes, found among 140 cases, 36 which were associated with leukemia. It is, however, difficult to form an exact estimate of the frequency of this symptom, and authors vary widely in their experience. Thus, Nothnagel² states that it is the most frequent symptom referable to the genital organs in this disease; while Muir³ mentions that it has been found in a considerable number of cases; and Cabot⁴ failed to meet with it in a series of 89 cases. Warthin⁵ has reported finding priapism persistent after death in three cases of splenomyelogenous leukemia, and is of the opinion that a history of it can be obtained in at least one-fourth of the cases suffering from this disease. It is of interest that no case of priapism in lymphatic leukemia has been found by me in an extensive search of the literature.

Causation: In the study of leukemic priapism it is well to consider the causes of pathological priapism in general. Perhaps the most scientific classification is that of Scheuer, which is as follows:

I, Local Causes:

1, Peripheral:

A, Through reflex nervous influences:

- a, Through inflammatory stimulation of the urethra and its glands.
- b, Through growths or tumors in the anterior or posterior urethra.

B, Mechanical causes in the corpora cavernosa:

- a, Disease processes in the corpora cavernosa or the urethra.
- b, Local disease of the penis: Traumatic, inflammatory, neoplastic.

C, Circulatory disturbances.

2, Central:

A, Anatomical disease of the brain or cord: Traumatic, inflammatory, neoplastic.

B, Functional disease of the brain or cord.

II, Constitutional Diseases:

A. Infectious diseases (tuberculosis, lues, typhoid or suppurative conditions, as appendicitis).

B, Intoxications.

C, General and blood diseases.

In the cases of priapism occurring in myeloid leukemia the autopsy and clinical findings have been quite constant. That is, a myelocytic thrombosis or infiltration of the corpora cavernosa. Even here, however, it would not be surprising to find rare cases due to other causes. For example, in the case of Kunst⁶ the priapism was attributed to the compression of the sympathetic by the enlarged spleen, thereby causing a vasomotor priapism. His patient also showed hyperesthesia of the anal region, scrotum and penis, which points to a disturbance of the third, fourth and fifth sacral segments. As injuries to these segments are known to produce priapism, his case might well have been of purely neurogenic origin. Solzar⁷ and Voister⁸ offer as the explanation in their cases a stimulation of the central nervous system by leukemic blood or a stimulation of the nervi erigentes by swollen pelvic lymph glands.

In a disease in which thrombi are of such frequent occurrence in such a variety of organs as in splenomyelogenous leukemia, it is not improbable that the priapism may rarely be explained by nervous lesions of this origin, quite analogous to

priapism met with in spinal cord diseases and injuries. It is proper to state, however, that I have been unable to find in the literature a single case in which such a condition was supported by anatomical findings.

Whatever may be said in regard to the production of priapism in leukemia by other means than thrombosis, the consensus of opinion of all authors, confirmed by my own studies, is that, in the overwhelming majority, it is due to this condition.

It is evident that the factors to be considered are those of thrombosis in general, and particularly of thrombosis in leukemia. We presuppose, in thrombosis, the action of one or more of three factors, viz., a retardation of the blood stream, a change in the composition of the blood, physical or chemical, or an injury to the vessel wall.

In myeloid leukemia, all three factors may be concerned, but probably the most important and constant are the changes in the blood itself. The enormous increase in leukocytic cells, the great increase in platelets, the number of degenerated cells, and the frequency of agglutinated masses of myelocytes present in the blood stream, are all evidences of these changes. In regard to the chemical variations, we know that the calcium content is normal, but that the substances of cellular metabolism and degeneration are quite markedly increased. It seems evident that the increase in the number of myelocytes and their agglutinability must be closely concerned in the process of thrombus formation in leukemia. This is further borne out by the fact that thrombi are most common with a high myelocytic count and with an increase in erythrocytolysis and leukolysis. A multiplication of the myelocytes in the vessels has been suggested by Warthin as a possible cause of leukemic thrombosis. Should such a process occur in would not be difficult to see why thrombosis would be especially liable to occur in such regions as the corpora cavernosa where the blood stream is very slow.

Mitosis of myelocytes in the vessels unquestionably occurs in leukemia, and it is quite possible that in this manner alone occluding masses might be formed; further, such masses of cells, just as agglutinated cells, might serve as foci about which fibrinous thrombi could be generated. But so far histological observations on such modes of thrombus formation in leukemia are lacking.

The increase in platelets may also be a factor of considerable importance. It is quite generally agreed that in a number of diseases in which the platelets are increased in number thrombosis as a complication is frequently encountered. Examples of such conditions are chlorosis, posthemorrhagic anemia, hemorrhage after childbirth, and such diseases as meningitis and septicemia. The platelets are decreased in number, on the other hand, in hemophilia, purpura hemorrhagica and lymphatic leukemia, in which thrombosis is rarely if ever present. It would be erroneous to ascribe to the platelets the main role in the formation of thrombi in myeloid leukemia, but together with other factors they probably exert some etiological influence.

Various changes are found in the vessel walls. Degeneration of the vascular endothelium has been described, and in addition, proliferation of these cells occurs particularly in the liver and spleen. However, in the case here reported, where multiple thrombosis occurred, the latter process was not evident. Welch⁹ examined a case (p. 708) in which multiple venous thrombosis complicated leukocythemia, and found a primary mycotic endophlebitis with secondary thrombosis. In his case streptococci were present as a secondary infection. This direct observation and the well known frequent occurrence of secondary infections in leukemia suggest the probability that in some cases at least the leukemic thromboses are induced through or by this agency.

Duration: The duration of this symptom is quite variable. Cases have been reported in which the priapism disappeared within two weeks, and it has been known to persist as long as seven months, as in one of Warthin's cases, in which the condition continued even after death.

Symptoms: The symptoms are not constant. Pain is probably the one most frequently present and is often very severe and persistent. The pain is of a dull, boring character, radiating into the lower abdomen, and, on account of its severity, often requires opiates. In many cases micturition is difficult or impossible, and on account of the long continued catheterization which must be resorted to cystitis with its accompanying symptoms is encountered. In very few cases have sexual feeling or emissions been present.

Sequelae: The cases in which priapism occurs are not infrequently in very precarious condition; in fact, Warthin asserts this symptom may have a prognostic import. But this is not

without exception, however, for as mentioned above, the condition may appear very early in the disease, and, as in my case, the priapism may partially disappear and the patient succumb in a subsequent exacerbation of the leukemia. In cases in which the symptom disappears the penis may appear normal, the thrombus having disappeared. But in the case here reported, although the priapism disappeared, the organ continued to have a boggy feel. No other case has been found by me in the available literature in which the histological changes are described after subsidence of the priapism. In such a case two processes could occur, a resolution or an organization with contraction of the thrombus. The latter occurred in my case.

Treatment: The treatment is mainly palliative; morphin sulphate and other sedatives combined with ice-packs for the severe pain, and catheterization for the urinary retention are about all that can be done medically. Surgically, the clot can be evacuated, as has been done in a few cases; but the danger of infection in this region together with the impaired condition of the patient make this procedure precarious in most cases. Roentgen irradiation has been suggested for the destruction of the thrombi, but the reports from this form of treatment, except in rare instances, are not especially encouraging.

Case Report

The patient, M. B., Jewish, aged 36, a painter by occupation, entered The Lakeside Hospital on June 22, 1911, complaining of a priapism which had persisted for two days.

The family and personal histories are negative. The patient's average weight has been 138 pounds.

The present illness began three years before admission with a severe attack of epistaxis and pain in the left side. He consulted a physician who told him he had leukemia. He has been treated in various hospitals and by numerous physicians, by internal medication, intramuscular and hypodermic injections, and Roentgen irradiation, but he has grown progressively weaker. He has had numerous cramplike pains in the abdomen and in the lower extremities; dizziness and at various times scotomata, tinnitus and earache. The appetite has generally been good. For the past two days he has had a persistent priapism, attended by marked pain in the penis radiating to the lower abdominal region and testes. With this there has been great difficulty in urination.

Physical Examination: Patient is a frail, poorly nourished man of 36 years, lying in dorsal decubitus, groaning as though in great pain. The skin is hot and dry, and the vasomotor reaction is very sluggish. The muscles feel atrophic. There is some tenderness over the mastoid process on the left. The sclerae are injected, the pupils are equal and concentric and react equally to light and in accommodation. There is no discharge from the ears, but a slight thickening of the right tympanic membrane. The nose is normal. Mucous membranes are pale. The teeth are in fair condition; there is slight alveolitis. The tongue is protruded in the midline with a slight tremor. The tonsils are covered with a patchy, white exudate. There is some injection of the pharynx. The

superficial vessels of the neck are dilated and show a positive venous pulse. The superficial lymph glands are everywhere quite small and very hard; epitrochlear glands are palpable. The thyroid is tender.

Heart and lungs show nothing remarkable. The pulse, rate 108, is regular in rhythm and force, and of low tension. The anacrotus is rapid and catacrotus poorly sustained; there is no dicrotism.

The left side of the abdomen is more prominent than the right, due to an enlargement of the spleen which can be felt as a hard, notched tumor filling the entire left side, extending to the midline and well down into the pelvis. The liver is also greatly enlarged and extends from the fourth intercostal space in the parasternal line to ten centimeters below the costal border. The edge is firm, smooth and hard and quite sensitive to pressure. The penis is in the state of erection. The corpora cavernosa are very firm and hard and the skin over them is stretched, dark red and glistening. The corpus spongiosum and glans, however, are quite soft. The slightest pressure gives exquisite pain. The reflexes are very sluggish, but present and equal. The extremities show nothing remarkable.

June 30, 1911. For the first few days after admission the patient could not urinate and catheterization was resorted to; but at present he urinates with but little difficulty.

June 19, 1911: Priapism on left side of penis much softer than formerly, while the right side is increased in density, causing some deviation to the left.

August 19, 1911: The priapism lasted eight weeks. Now, although the priapism has disappeared, the penis feels boggy, and the corpora cavernosa look much larger than normal.

June 23, 1911: Blood: Erythrocytes 3,160,000. Leukocytes 692,000. Hemoglobin 90%, Talquist. Differential count, 500 cells:

Small mononuclears	4%
Polymorphonuclears:	
Neutrophilic	24%
Eosinophilic	8%
Basophilic	1%
Myelocytes:	
Neutrophilic	62%
Eosinophilic	1%
Basophilic	0%

The urine is straw colored, with a specific gravity of 1012, an alkaline reaction, and a trace of albumin; no sugar; granular sediment composed of triple phosphates; a few granular casts and leukocytes.

During his stay in the hospital, with the exception of a few times, the temperature, pulse and respirations were normal. The patient was discharged, August 17, 1912, slightly improved.

February 6, 1912. The patient was readmitted on this date complaining of weakness and headache. Since leaving the hospital he has felt weak and has had pain in the lumbar region and his appetite has gradually decreased. Two weeks before this admission he began to have attacks of dyspnea, flashes of light before the eyes, and his former abdominal pain reappeared with increased intensity.

The physical examination differed from the former by the following points:

1, There is no priapism. The penis feels boggy and the corpora cavernosa are still rather large.

2, The glands of the axillary and inguinal regions are somewhat larger.

3, There are large, distended, distinctly visible veins on each side of the thorax, extending from the axilla to the sixth rib on the right side and to the eighth rib on the left side. This is probably due to a myelocytic thrombosis of some of the deeper veins.

4, The size of the liver is the same, but the spleen is somewhat larger.

5, The tendo-achilles and patellar reflexes are absent on both sides.

February 7, 1912: The patient developed pain on the left side of the scrotum and in both testes, which proved to be due to a thrombosis of the pampinniform plexus which could be felt as a hard bunch of cords.

February 7, 1912: Blood: Erythrocytes 1,964,000. Leukocytes 351,200. Hemoglobin 60%, Talquist. Differential count, 500 cells:

Small mononuclears	5.12%
Large mononuclears	6.3%
Transitionals	1.6%
Polymorphonuclears.	
Neutrophilic	36.4%
Eosinophilic	0.3%
Basophilic	0.0%
Myelocytes:	
Neutrophilic	48.5%
Eosinophilic	0.5%
Basophilic	0.3%

Ten normoblasts were encountered in this count.

February 11, 1912: Erythrocytes 1,952,000. Leukocytes 384,000. Hemoglobin 60%, Talquist; 58%, Gowers. Specific gravity 1065. Color index 1.5.

February 21, 1912: Erythrocytes 2,082,000. Leukocytes 335,000. Hemoglobin 60%, Talquist.

March 10, 1912: The patient developed a lobar pneumonia in the left lower lobe. Following this there was a very noticeable drop in the leukocyte count, which reached the lowest point on March 20, 1912, at which time it was 158,000, but this rapidly increased, and on April 2, 1912, the leukocytes had reached 595,000.

March 13, 1912: The left leg and thigh are much swollen and quite tender, and there is much tenderness over the femoral vein and Scarpa's triangle. The condition appears to be a femoral phlebitis with thrombosis.

April 15, 1912: The whole left leg is hot, very edematous and tender. The course of the internal saphenous vein in the right leg is palpable as a solid cord as far as the internal malleolus. The slightest pressure over the vein causes great pain. There is no edema of the right leg.

April 19, 1912: The right leg is now very edematous from the toes to the groin.

From the time the patient reentered the hospital until the lobar pneumonia developed he ran a very irregular temperature, usually of the remittent type, often reaching 103° F. During the pneumonia there was a nearly constant elevation of from 102° to 103°. This began to fall by lysis on the tenth day, and on the thirteenth day of the pneumonia, it had reached normal. After continuing so for a few days it again began to be of the remittent type and continued to until two days before death, when it became subnormal.

Autopsy

Anatomical Diagnosis: Splenomyelogenous leukemia; myelocytic infiltration of all organs; thrombosis of both femoral veins, on the left side extending to the long saphenous near the internal malleolus; thrombosis of left pampiniform plexus; thrombosis of dorsal artery and corpora cavernosa of penis; thrombosis of several veins of lung; unresolved lobar pneumonia, left lower lobe; hemorrhagic infarction of lung; chronic fibrous pleuritis, right; healed tuberculosis right apex; cloudy swelling of kidney; uric acid calculus in left kidney; splenic infarction; aortic valve sclerosis; edema of legs; extreme emaciation; pigmentation of skin of abdomen; sacral decubitus.

The body is that of a greatly emaciated, white male, with a length of 156 cm. Rigor mortis present in the lower extremities; there is slight hypostasis of blood in the dependent portions. The skin is thin and atrophic, and shows a slight general pigmentation which is more pronounced over the abdomen. Over the sacrum there is an excoriated area

of 3 cm diameter, with granulating edges. The superficial lymph glands of the neck, axillary space and groin are discrete, hard and freely moveable; the epitrochlear glands are not palpable. The head is well formed; the eyes are sunken; the sclerae show dark slaty patches in areas of about 2 mm diameter; the pupils are greatly dilated and equal; there is no discharge from the nose, ears or mouth. The mucous membrane of the mouth is pale; tongue heavily coated; pharynx pale; tonsils not enlarged; teeth in fair condition. The neck is thin and there is no thyroid enlargement. The thorax is symmetrical, broad and deep. The abdomen is rounded; spleen and liver easily palpable. The upper extremities are very thin; the lower, from Poupart's ligament downward, show an enormous edema.

The skin of the abdominal wall is thin and the fat is nearly absent; the muscles are pale and dry. The peritoneum is smooth, moist and glistening. There is no fluid in the abdominal cavity. The stomach is considerably dilated and displaced to the right by the greatly enlarged spleen. The spleen itself reaches 12 cm below the costal margin. By its enlargement it has displaced the left kidney, which lies near the midline, with its lateral margin pointing anteriorly, and the pelvis pointing toward the spinal column. The liver extends 5 cm below the costal border in the midclavicular line. The diaphragm reaches to the fourth interspace on the right and the fifth interspace on the left.

The precordial space and pericardium show nothing unusual. The right pleural cavity is obliterated by friable adhesions, and the left is obliterated laterally and at the base by adhesions of the same character. The heart weighs 225 gms; subepicardial fat very slight in amount. The epicardium is smooth in all situations. The right auricle and ventricle and the left auricle are filled with dark red, fluid blood. The left ventricle is firmly contracted and contains a small amount of solid, dark red clots, and at the apex there are about 30 ccm of a yellowish green, soft, semi-fluid, puriform material. The endocardium is normal. The valves are all competent and are of normal size. The myocardium is quite pale and rather soft. The papillary muscles are thin and small and show yellowish-white areas just beneath the endocardium. The coronary arteries are thin-walled and patent throughout. Aorta not remarkable.

The right lung weighs 395 gms; left, 425 gms. Both are edematous in the dependent portions, and the pleurae show a chronic fibrous pleuritis. Subpleural ecchymoses are common. At the left base there is considerable increase in consistence, and the lung tissue is more dry than elsewhere (unresolved pneumonia).

The liver weighs 2100 gms and measures 28 by 21 by 8.5 cm. The capsule is thin and glistening and through it the liver substance appears of a light reddish brown color. The lobules cannot be made out. The edges are slightly rounded and softer than normal. On section the organ cuts easily, and with the exception of a quite pale color, the cut surface shows nothing remarkable.

The spleen weighs 1352 gms; it measures 20 by 14 by 8.5 cm. The capsule is greatly thickened and covered by firm fibrous tags. On the lateral surface there is a 4 cm long puckered white scar (infarction). The entire organ is very firm and has a rubbery consistence. On section it cuts with a great increase in resistance. The cut surface shows a varying picture; in general the organ is of a dark red color, very smooth and hard. Here and there are areas varying from 1 to 3 cm in diameter, of a grayish-yellow color and irregular outline, which fade into the surrounding tissues. The Malpighian bodies cannot be made out. The trabeculae are seen as slender white bands, and are not increased in number or size. The vessels show nothing remarkable. At the hilus there are a number of pea-sized lymph glands which are discrete and of a greenish-white color on section.

The right kidney weighs 160 gms and measures 12.5 by 7.5 by 5 cm. It is of normal conformation, with a very slight amount of perirenal fat. The capsule is thickened but strips easily, leaving a pale grayish surface,

on which the stellate veins are discernible. On section the tissue is very pale and has a rubbery consistency. The cortex is well defined from the medulla; the glomeruli cannot be seen. The mucosa of the pelvis is pale, and scattered over it are a few ecchymotic areas. The vessels and ureters are not remarkable.

The left kidney weighs 300 gms; it measures 15.5 by 9.3 by 4.5 cm. It is much larger than usual, and the capsule, which is thickened, is very tightly stretched. On section the organ seems to be composed of a homogenous greenish-yellow substance, and the architecture cannot be made out. In the pelvis there is a calculus 2 cm in diameter which on microscopic and chemical examination proved to be nearly pure uric acid. The vessels are greatly compressed on account of the position of the organ.

The adrenals weigh 15 gms; not remarkable.

Pancreas, esophagus, stomach and intestines, bladder, prostate and testes, show nothing unusual.

Pampiniform Plexus: On the left side many of the veins are occluded by brownish, laminated thrombi.

Femoral Veins: In the right, beginning at the bifurcation of the common iliac vein and extending to the middle of the thigh, there is found a firm, grayish-brown thrombus entirely occluding the lumen. Several of the smaller branches also contain similar thrombi. The same condition is found in the left side, but it begins in the femoral and extends down into the long saphenous as far as this can be traced. (By palpation a cord-like structure can be found as far as the internal malleolus).

The brain weighs 1230 gms. The only macroscopic changes noted are the extreme pallor and a few thrombi in the smaller vessels of the pia-arachnoid. The spinal cord is not remarkable.

The penis has a slightly doughy consistency, especially noticeable in the corpora cavernosa. On section these are found to contain a yellowish, seemingly homogeneous material, from which no blood can be expressed and which completely occludes the lumina of the sinuses throughout their extent. In the corpus spongiosum, however, the sinuses are distinct and upon pressure a considerable amount of blood exudes and the remainder of the organ appears normal.

Microscopic Examination

The histological findings in the various organs are those of a leukemic infiltration, an occasional infarcted area, as in the spleen, lung and kidney, and quite commonly thrombosed vessels. The latter condition is probably the most striking feature. Throughout the sections of the different organs, affecting alike both large and small vessels, there are found dense thrombi containing little fibrin and few erythrocytes. They are composed almost entirely of agglutinated and degenerated myelocytes. In the majority of the smaller thrombosed vessels the myelocytes are fairly well preserved, and an occasional mitotic figure in these cells can be found. There are no evidences of an endophlebitis. The endothelium is intact, the walls of the vessels show moderate myelocytic infiltration, and the vasa vasorum are well preserved and contain many myelocytes.

In the femoral veins the thrombi show a considerable degree of degeneration. The centers of the thrombi are composed of a faintly basic staining, heterogeneous material in which nuclear fragments, pyknotic nuclei, and free chromatin dust are abundant.

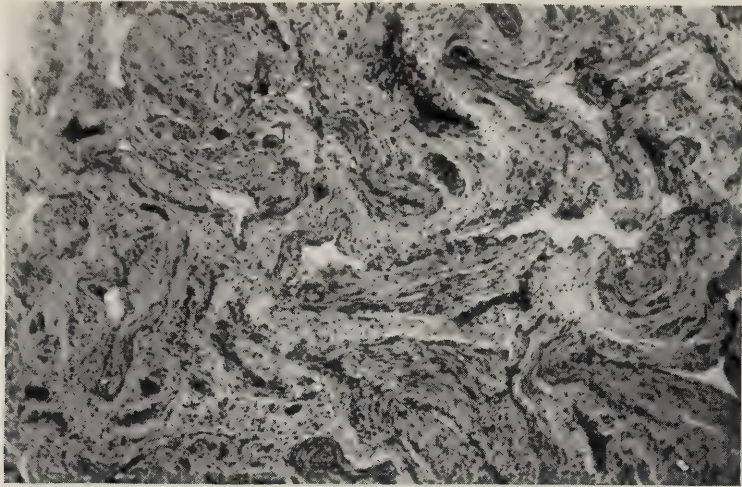


Fig. 1. Corpus spongiosum.

Towards the edge of the thrombi better preserved cells are found, held in a fibrinous network. Throughout this there are also found fibroblasts and newly formed capillaries. The fusion of

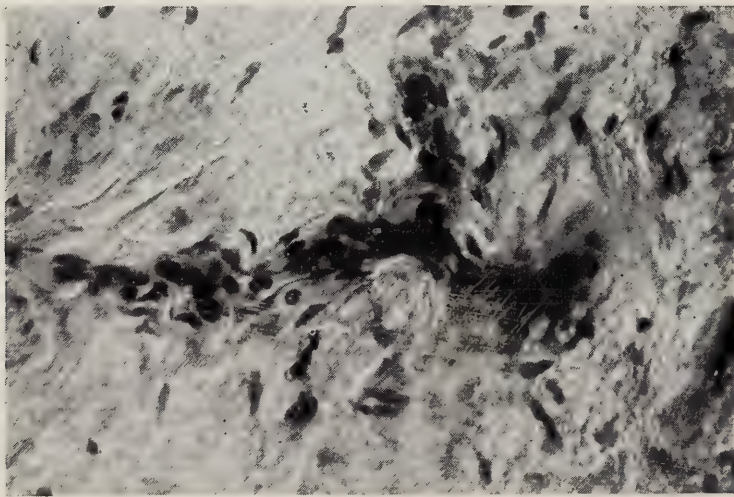


Fig. 2. A new formed blood vessel in the altered corpus cavernosum.

the thrombi and the vessel walls is so complete that no dividing line can be distinguished. The signs of an active inflammatory condition are not present.

Quite frequently there occur in the nonthrombosed vessels small agglutinated masses of myelocytes which otherwise appear quite normal.

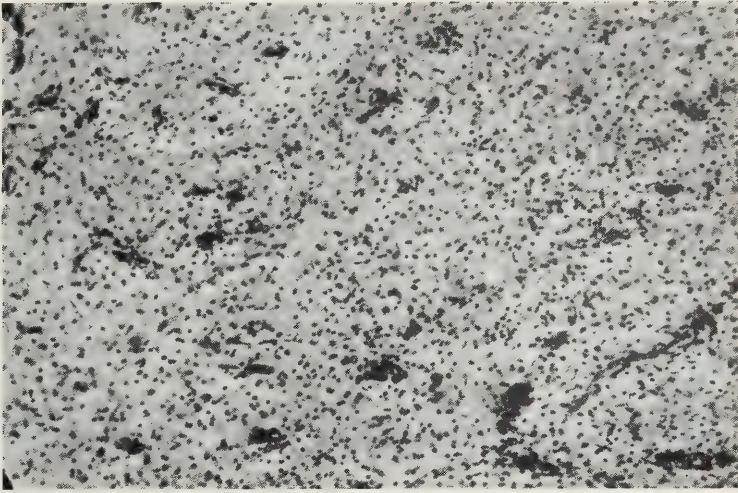


Fig. 3. Corpus cavernosum; showing disappearance of original tissue, new formed vessels and a ground substance with lymphocytes and fibroblasts.

The bone marrow of the femur shows the typical changes found in myeloid leukemia. It is composed for the most part of myelocytes, among which are found small areas in which erythrocytes and an occasional normoblast are seen.

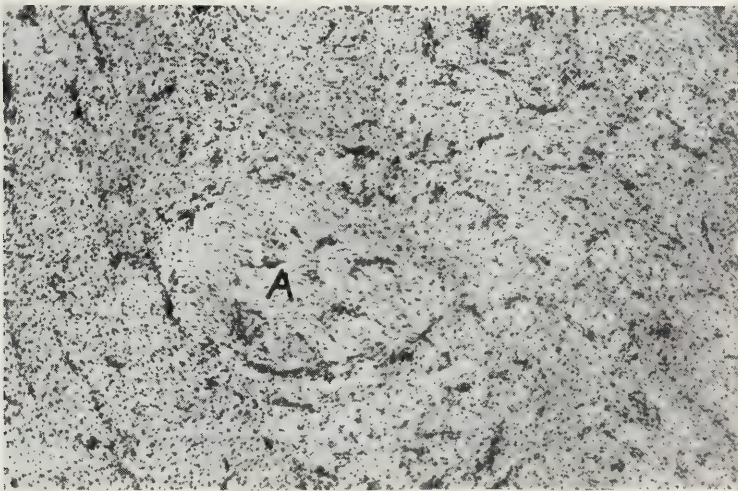


Fig. 4. Corpus cavernosum. At A one of the original trabeculae.

Sections of the brain and spinal cord stained by the Pal-Weigert method and by hematoxylin and eosin show nothing abnormal.

Penis: The sinuses of the corpus spongiosum (Fig. 1) are in most instances collapsed; a few are moderately dilated and contain a small number of erythrocytes, mononuclear and polynuclear leukocytes, and many myelocytes. The endothelium lining them is everywhere intact. The trabeculae show nothing remarkable. The helicine arteries are conspicuous on account of their myelocytic content. The cavernous tissue of the glans show nothing unusual. The corpora cavernosa, on the other hand, present quite remarkable changes.

The sinuses are filled with a light brown material (most probably broken down erythrocytes and myelocytes), in which there are scattered quite well preserved lymphocytes. Running irregularly throughout this material there are numerous strands of young connective tissue and capillaries (Figs. 2 and 3). The trabeculae are atrophied and have a hyalin appearance (Fig. 4). Their endothelial lining has disappeared in most situations. The

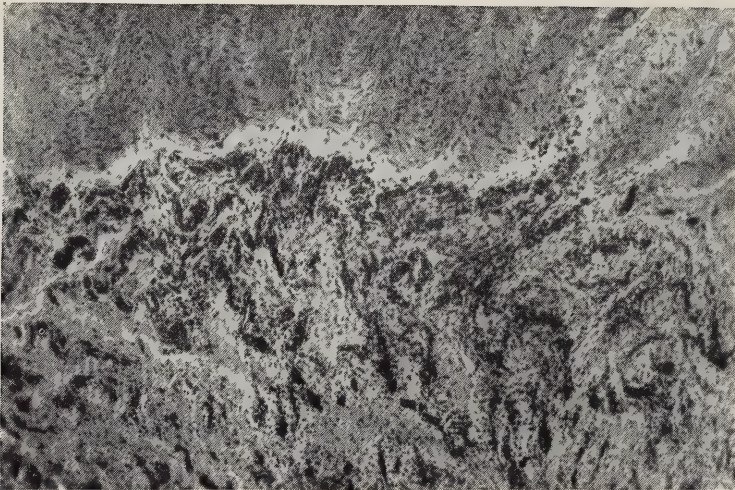


Fig. 5. Corpus cavernosum; above, the unchanged surrounding fascia; below, the altered cavernous tissue rich in new formed vessels.

cavernous artery is filled by an acid staining granular material in which fragmented nuclei are occasionally found. The arterial walls are hyalin and scarcely to be distinguished from the surrounding material. The deep fascia surrounding the corpora cavernosa is well preserved (Fig. 5).

Sections stained by Weigert's fibrin stain show only an occasional strand of fibrin. Treated by Perl's test the above mentioned yellowish material takes on a bluish color and is therefore

an ironbearing pigment (hemosiderin). Here and there are slightly larger granules of a yellowish brown color and not changed by the treatment with potassium ferrocyanide and hydrochloric acid (hemifuscin). The dorsal artery contains a mass of closely packed myelocytes and a few erythrocytes (Fig. 6). The dorsal veins contain a very little blood.

The interpretation of these changes is quite simple. The thrombus, which originally filled the sinuses of the corpora cavernosa, has been replaced by a very delicate connective tissue



Fig. 6. Dorsal artery of the penis, occluded by a myelocytic thrombus.

fairly rich in capillaries, throughout which there are found the remains of broken down erythrocytes and a few infiltrating lymphocytes. The degenerative changes with subsequent organization again permitted a sufficient circulation to maintain the further nutrition of the tissues. This secondary change led to the disappearance of the priapism and to the transformation of the corpora cavernosa into somewhat enlarged structures of abnormal consistency.

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For a quite complete literature list see the article by Scheuer (1).

On the Surgical Management of Certain Cases of Calculous Obstruction of the Common Duct of the Liver

By W. D. HAMILTON, M. D., Columbus, Ohio

The writer stated in a recent article (*Medical Record*, September 14, 1912), that few, if any of the fatal common bile duct cases were promising operative subjects. Jaundice, with liability—especially if deep—to postoperative hemorrhage, sepsis acute or chronic, with the impaired physical resistance which long suffering had produced, were the more usual impediments to recovery. A few of the common duct cases might have survived provisional drainage of the gall-bladder merely, thus mitigating the "bottled up" biliary sepsis, so that a later choledochotomy might have been successful.

In the diagnosis of common duct cases one often finds the history of ague-like chills, fever and sweats from biliary sepsis. One may find too, sometimes, deep-seated tenderness one inch to the right of and above the navel. If at operation one finds a shrivelled gall-bladder—cholecystitis obliterans—one naturally assumes that concretions may be found too in the common or hepatic ducts. A large gall-bladder with jaundice may suggest, according to Courvoisier, Robson and others, cancer of the pancreas or bile ducts.

The septicity of many of the cases in which there are stones in the common duct was then emphasized, and, too, the feeble reparative power of many such patients was indicated. The most important means of tiding over such a patient may be by the mitigation of the biliary sepsis. Therefore preliminary cholecystotomy was advocated, looking to an operation later, clearing the common duct of all remaining concretions at a time

when the patient would be much more liable to survive the operation.

The accompanying history of a patient thus operated upon will serve to illustrate the advisability of such a course. The question in her case for a fortnight after her admission was as to whether she was not slowly dying. Under certain palliative measures, however, she got into such physical condition as to allow us to hope that she might withstand the preliminary drainage of the gall-bladder.

Mrs. L., aged 63, patient of Doctor Lee, Mt. Vernon, Ohio, entered Mt. Carmel Hospital on the 16th of May, 1912. She had deep jaundice, was delirious and semi-comatose. The tongue and teeth were dry and filthy. Peristalsis could be felt; the abdomen was somewhat distended; pulse slow and feeble; cyanosis of nails; respiration shallow; no tumor palpable about the gall-bladder; tenderness one inch to the right of and above the navel. Hands and feet were a little bit cool. A digital examination showed the pelvic contents to be normal.

The woman was of the fat and flabby type; her condition one of extreme physical weakness. She had been subject to vertigo during the past seven years, and to biliary colics for the previous ten years; she had had four or five attacks in the last three or four years. For several years she had had more or less tenderness in the gall-bladder area.

Normal salt solution was injected beneath the breasts, and salines were likewise employed for a fortnight per rectum. At the end of that time her condition was such as to make the removal of the stones from the gall-bladder permissible. At the first operation, the atrophied gall-bladder was found to contain many stones—one large one in a dilatation near the cystic duct. Bile escaped freely during the manipulations. Stones the size of a hazel nut could be felt in the common duct.

Four weeks later her condition having improved considerably, choledochotomy was done. In the scar of the previous incision there was a biliary fistula discharging rather freely. There were many adhesions of the omentum to the operative field. The adhesions were separated and gauze packing employed. The common bile duct was much thickened and as large as a man's thumb. After opening the common duct and removing three stones, the duct was apparently empty. Then upon examination later, more stones were felt (they had evidently come down from the hepatics), until eventually ten were removed from the common duct after getting the first three. All of these were of the familiar polyhedral type except one, which was absolutely black, and smooth in surface, but irregular in outline, and of the jack-stone type. The probe and forceps were then passed into the duodenum and also up toward the liver, and a tube sewed into the common duct. The gall-bladder contained three more stones at this time. These were removed, then the probe passed readily into the gall-bladder and thence into the common duct. A tube was left in the gall-bladder, and also one in the right kidney pouch. The patient made an excellent recovery, and when last heard from was in good health.

In the interval between January 1, 1907, and November 15, 1912, there have been in the practice of Doctor Chas. S. Hamilton and the writer 243 occasions upon which patients have been operated for the removal of gallstones. There have been twenty-four deaths in this number. There were 195 cases in which gallstones have been removed from the gall-bladder and the gall-bladder drained, or the gall-bladder removed. There have been

twelve deaths in this series. This includes two cases in which the cystic duct was large enough to make it possible to bring the stones back out of the common duct through the cystic duct, making them extricable through the gall-bladder incision. Both of these patients recovered. Forty-six patients required calculous choledochotomy; thirty-five recovered and eleven died.

The summary given above includes one case which was not properly an operative procedure upon the bile conveying apparatus *per se*. In this case an operation was done for acute intestinal obstruction due to the impaction of a large gallstone in the small intestine. The intestine was incised, and the stone removed, followed by enterorrhaphy. The patient died a fortnight later.

Stones in the common or hepatic ducts have been present in our experience in about 20 per cent of the cases. In only one other case in the entire series, so far as is known, were concretions permitted at operation to remain in the choledochus, and it terminated fatally. The patient had coincident cancer of the pylorus, requiring a rather extensive partial gastrectomy. The stones were removed from the gall-bladder and the organ drained, while those in the choledochus were left *in situ*. Under ordinary circumstances an operation for gallstones is not complete until all the concretions in the bile-conveying apparatus have been removed, for if any be overlooked, spasms of pain and biliary fistula, with impairment of the health will be very liable to occur. However, there are extenuating circumstances where the lives of patients who are extremely ill from biliary sepsis may be saved by operation *a deux temps*.

Medical Sociology in Civic Betterment:—The medical profession, scientifically, is rapidly placing itself on a par with the profession of the older countries. We have the knowledge to take up the tasks of preventive medicine and sociology in this country, and the opportunity is ours. If we but supply the necessary interest and energy, public welfare work in its broadest and truest scope will go forward by leaps and bounds. There will grow alongside of it and directly out of it a higher sense of public duty, a more ideal and unselfish citizenship—a citizenship that will more fully realize its deep obligation to the medical profession; and in this mutuality of confidence and regard, the medical profession will take a new and higher place in the community and will receive rewards not yet dreamed of.

Physician, "know thyself"—know thy strength, thy power, thy scope; physician, "heal thyself" of a contracted vision as to thy field of usefulness. From the ranks of thy profession must be developed the true "social engineer" to lead in the present world movement for social improvement. This social engineer will find his life—the extension of the humanities; his hope—the prevention of life waste; his works—service to mankind.—Otto P. Geier, J. A. M. A., lix, 788.

Eugenics: The Rearing of the Human Thoroughbred*

By H. E. JORDAN, M. A., Ph. D., Professor of Histology and Embryology, University of Virginia, University, Virginia.

Eugenics is defined by its founder, the late Sir Francis Galton, as "the study of the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally." In his earlier lecture before the Sociological Society of London on May 16, 1904, Galton spoke of Eugenics as "the science which deals with all influences that improve the inborn qualities of a race, also with those that develop these to the utmost advantage."

Sir Francis Galton a half first cousin of Charles Darwin, was born in Birmingham in 1822, the same year with Louis Pasteur and Gregor Mendel. The word "eugenics" was first used by Galton in his book "Inquiries into the Human Faculty," published in 1883. Eugenics, literally the science of being well-born, or racial hygiene, as it is called by Saleeby, is thus one of the very newest sciences.

The idea was of course not new to Galton. Just as the idea of evolution was not new to either of the contemporaries Spencer, Wallace, or Darwin, who almost at the same instant glimpsed the truth of an organic progress through struggle for existence and a survival of the fittest, or by natural selection; but had been suggested, at least to Darwin, by Malthus' book on Population, and can be traced in germ back through the writings of Darwin's grandfather, Erasmus Darwin, and his contemporaries, Treviranus and De Candelle, to whom it had probably been suggested in the works of the philosopher Buffon, back to Lucretius and Empedocles and finally to the early Greek philosopher Anaximander; so the idea of "good stock," "noble blood," and "fine breeding" may be discerned in more or less clear form in almost every age. The idea is clearly stated in Plato's Republic; and it is a historical fact that, whatever the state of biological science in the time of the Spartans, these noble people, in crude but effective form practiced the art of eugenics until the time when their best youth was too largely sacrificed to the God of War.

It was not, however, until Louis Pasteur had announced the results of his studies of microörganisms, and had made clear

**An address before the third annual meeting of the American Association for the Study and Prevention of Infant Mortality, held at Cleveland, October 2-5, 1912.*

their relation to man as a part of his environment, working in some cases for good, in others for mortal ill, and emphasized their importance with respect to the welfare of man; nor until the unassuming Austrian monk of the cloister at Brünn had rediscovered the results of his experiments in hybridizing peas, that any real and certain advance could be made in the science of eugenics. The sciences of bacteriology and genetics, or the physiology of heredity, had to be born before certain steps could be taken in the control of human evolution.

The science did not get the early start that it might have had. Mendel's paper, published in 1865 in *The Transactions of the Natural History Society of Brünn*, was neglected until the same results were simultaneously rediscovered in 1900 by Correns of Leipzig, Tschermack of Berlin and De Vries of Amsterdam. Search of the literature then revealed the fact that Mendel almost forty years before had reported the same facts. Of course ample recognition has since been taken of Mendel's work, and fitting respect has been paid to the man in essay and memorial and in the erection of a statue in his native town of Brünn, and in naming the particular type of heredity he discovered, alternate or Mendelian inheritance.

Galton was meanwhile laying the foundations of engenic in the preparation of his book on "Hereditary Genius," published in 1869. This work also was for many years neglected. Pasteur's work and the rebirth of Mendelian heredity gave renewed impetus to the biosocial study of men. With renewed zeal and interest Galton returned to the work in the interest of eugenics in 1901 when he delivered the Huxley lecture of that year before the Anthropological Institute of London on "The Possible Improvement of the Human Breed under the Existing Conditions of Law and Sentiment." Then the science of eugenics leaped into prominence. Pasteur, who laid stress on the importance of the factor of environment with respect to man's well-being; Galton, who emphasized the importance of the factor of heredity to this end; and Mendel, who stated the law of the inheritance of organic characters, thus laying a scientific foundation for the social direction of human evolution, had now received a universal hearing.

It is not too much to say, I believe, that the idea of eugenics, based upon the science of genetics, will work the greatest social revolution the world has yet known. Closely related to the con-

cept of evolution, which has left its impress on every department of human thought, the idea of engenics can hardly be compared with it in the pregnancy of its promise, the immensity of its scope and in the serious import of its reception or neglect for the future trend of nations. It aims at the production, and the exclusive prevalency, of the highest type of physical, intellectual and moral man, within the limits of human protoplasm.

Before discussing the foundations and data, and attempting an interpretation from several standpoints, notably social and economic, let me merely mention its organs for research and propaganda.

First in point of time, and I believe in point of value of its scientific output and service, is the Galton Eugenics Laboratory of the University of London, endowed in part by Galton himself, and under the directorship of Karl Pearson, Professor of Applied Mathematics, and the author of the well-known "Grammar of Science." The Eugenics Education Society of London, with offices in Adelphi, issues quarterly the *Eugenics Review*, a most valuable periodical. Under the influence of these two institutions Eugenics Societies have been formed in almost every large city of the British Isles. Numerous public lectures are also maintained, and pamphlets published. From the Galton Laboratory issues almost monthly some valuable memoir by one of its fellows or scholars, embodying the results of some practical eugenics investigation, e. g., effect of parental alcoholism on physique and intellect of the offspring; effect of women employment on infant mortality; the effect of factory legislation on birth rate; etc. The Drapers Company Research Memoirs must also be mentioned here as most valuable contributions, mostly by workers in the Galton Eugenics Laboratory. These several organizations and their organs and representatives have made numerous, thus far mostly unsuccessful, attempts to influence Parliament for the passage of legislation, e. g., legislation relating to Poor Laws, Child Labor, Factory Laws, Marriage Laws, etc., fully concordant with eugenic principles.

In America we have the Eugenics Committee of the American Breeders' Association, founded in 1903, with Doctor David Starr Jordan, President of Leland Stanford Junior University, as its chairman, and Professor C. B. Davenport, Director of the Carnegie Station for Experimental Evolution at Cold Spring Harbor, Long Island, as Secretary. Its official organ is the

American Breeders' Magazine, a quarterly which publishes the results of scientific investigations largely in nontechnical form. The Committee hopes to come into possession of larger financial resources, and has already laid elaborate plans for the prosecution of a detailed scientific study of human characteristics and traits both normal and pathological. The Committee has cooperated in the establishment of the Eugenics Record Office, at Cold Spring Harbor, under the directorship of Mr. H. H. Laughlin. This office is collecting, filing and analyzing data from all over the country respecting the heritable family traits or capacities of various sorts. Already very valuable publications have issued from this office.

The American Association for the Study and Prevention of Infant Mortality has also organized a Eugenics Section and contemplates the collection of data regarding the hereditary transmission of pathological conditions with a view to lessening the infant mortality rate.

In Germany an International Society for Improving the Health of the Race (*Internationale Gesellschaft für Rassen-Hygiene*) has been formed with Doctor Alfred Ploetz, of Munich, as President. There is a similar society in Sweden. The German society aims to pursue its work in a spirit of chivalry, operating on higher levels, however, than the chivalry of the Middle Ages. This chivalrous spirit will, Doctor Ploetz believes, impart self-respect and dignity; and guard against the squandering of the chief national strength. The society seeks to promote the study of scientific biology—social and racial—and of social and racial hygiene (a), by collecting and recording such facts, pathological and normal, bodily and mental, as illustrate the working of the laws of heredity and variation in the case of man; (b), by spreading the knowledge of these facts, and of the lessons to be derived from them amongst its members and the population at large. It seeks to stimulate its members to carry out in practice the following principles, viz., (a), to improve their own spiritual, intellectual, and bodily efficiency; (b), to agree that before entering into marriage they will submit to a medical examination as to their fitness for the marriage state, and if pronounced unfit, will abstain from marriage, or, at all events, from parenthood; (c), to promote by every means in their power the individual and racial efficiency of their offspring.

In France also there is activity along these lines. Here, however, there is perhaps more of practical work and less of oratory and essay. The various agencies which seek to counteract present economic conditions, which tend to penalize motherhood and to handicap the man of family, are cast largely along eugenic lines. Numerous bonuses to large families and special concessions to the married here tend to preserve the middle class, the backbone of any nation, the source from which under present conditions, the men of ability and genius must be recruited. For example, in the city of Paris every workman receives at marriage a gift of 100 francs. Married workmen receive a gift of 100 francs each at the birth of a child. The mother, if she is in work or in service, has a right to six weeks' holiday on full pay. Every workman who has more than three children on his hands under the age of sixteen receives the sum of 100 francs per annum for each child after the third. In the colonies also of England, Germany, and France research, agitation and legislation along eugenic lines are advancing.

What does all this activity mean? Is the matter really serious? Are the English, German, French and American nations actually in peril? Are our prophets seeing aright when they point our attention to the fate of Assyria, Babylonia, Egypt, Greece, and Rome? Are symptoms appearing among us similar to those which accompanied the demise of these great nations? Have our statesmen-scientists suddenly become hysterical, lost their power of clear vision and intelligent foresight? Are they tilting with wind-mills or are they actually fighting national dragons? What then seems to be the trouble? The trouble is implied in a statement of Whetham's "Although the suppression of the best blood of a country is a new disease in modern Europe, it is an old story in the history of nations and has been the prelude to the ruin of states and the decline and fall of empires."

The fall of Rome is not now attributed to degeneracy following luxury and overculture spoken of by Gibbon, nor to the malarial parasite as urged by Doctor Ross, nor to a principle of natural racial senility spoken of by Professor Ray Lancaster; but most probably to the fact, as President David Starr Jordan points out, that the human harvest was bad, that Rome sacrificed its best manhood in war, and left the business of breeding new generations to weaklings, seniles, cowards, and scullions. The same sad lesson is just beginning to be read by England in the

Indian and African wars. The flower of her young manhood, scholars from Oxford and Cambridge, lie in the sands of India and South Africa, "replaced by marble tablets" throughout the counties of England.

A similar lesson we read in the Civil War. Five hundred thousand of our best young men, North and South, lost forever. The lost can never be replaced. America, perhaps, will never know what the war has cost in terms of its highest national asset—splendid young manhood.

In the Wiertz Gallery in Brussels is a picture of Napoleon in Hell. There stands Napoleon looking out into space. Here in the foreground are innumerable faces. Thousands upon thousands are simply hinted at. These are the faces of the young men and women and children who were killed in the wars of Napoleon. Surely this is a Hell; for Napoleon must have seen, clear-headed man that he was, that back of these were the potential millions of the best of Europe never now to be, because he had killed their potential ancestors.

The two-hundredth anniversary of the birth of Frederick the Great was celebrated in Berlin by an exhibition of paintings at the Royal Academy of Arts. These showed the versatile monarch in the many phases of his remarkable career, and represented the work of his contemporaries as well as of later artists. A reproduction of one of the paintings, "Frederick the Great After the Seven Years' War," is published in the *International Studio* for May. I am sure it was one moved by eugenic ideals who interpreted the picture thus: "The pathetic, intellectual face and the bowed figure seem to suggest that the victor is asking himself the question, 'Was it worth while?'"

Do you realize that only about 12 per cent of the present generation (or about 25 per cent of the marriages) produce 50 per cent of the next. Who constitute this 12 per cent? Is it our racial best? If so, then all is well. If otherwise then we are in peril. And we are in peril because like produces like. As the parent so the children; because figs will not grow on thistles nor grapes on thorns; because out of an unclean thing no clean thing can come.

The real trouble is that the most prolific are on the whole the less fit for the sacred duties of rearing the next generation. Too much poor stock is being bred, there is too little restraint upon idiots, feeble-minded, epileptic, tuberculous, syphilitics, dis-

eased; and too meager productivity among the best stocks. This is not merely an academic question; it is practical and most vitally important. National salvation seems to lie along the path of rigidly applied negative and positive eugenics, i. e., prohibition of parenthood, either by public opinion, moral suasion, or legislation, to the unfit; and encouragement, again by either or all of these methods, for more abundant parenthood among the racially fit.

The scientific basis upon which this remedy for national death rests is our knowledge of heredity. I have not time here to discuss the importance of the factor of environment. Suffice it to say that this factor is essential. The environment must be made as nearly ideal as possible by the elimination of all noxious bacterial and other deleterious conditions for the proper development of the best that heredity can give. But heredity comes first; environment, however necessary, can only follow. As Barrington and Pearson put it "The first thing is good stock, and the second thing is good stock, and the third thing is good stock, and when you have paid attention to these three things, fit environment will keep your material in good condition. No environment or educational grindstone is of service unless the tool to be ground is of genuine steel—of tough race and tempered stock."

Darwin long ago wrote "Hardly anyone is so ignorant as to allow his worst animals to breed." When the matter is one of breeding rare fowl or fine cows or good horses or dogs we breed only from the best. Why do we so persistently and cowardlywise shut our eyes to very obvious facts when they concern man? And today when we know so much—though we desire so much more, which will be ours in time—about the hereditary transmission of human characters, there is no excuse for inaction except selfish indifference or cowardice and the lack of patriotism.

There is an almost appalling array of scientific data regarding heredity in higher animals and man. I have time to speak of only a few investigations whose results seem to me most significant for our present purpose.

Professor Davenport has worked out the inheritance of blue and brown eyes in man. Brown eyes are due to the presence in the iris of a brown pigment; blue eyes to the absence of this pigment. Brown eyes may be either brown simplex or brown duplex, i. e., they may have resulted from a double brown-eyed parentage, or from one in which only one parent was brown-eyed. When brown-eyed duplex individuals mate only brown-eyed off-

spring result. When brown-eyed simplex mates with brown-eyed simplex one in every four will be blue-eyed. When brown-eyed simplex mates with blue-eyed, one-half of the offspring will be blue-eyed. Inheritance of eye color follows the Mendelian laws of dominance and segregation, by which one of a pair of alternative characters dominates in the first generation; and from crosses of such hybrids a generation will result in the proportion of three of the dominant to one of the recessive, one of which dominant and all recessives always breed true. The same law holds for many other physical characters. I believe that I have demonstrated this type of inheritance for crosses between whites and negroes as respects skin pigment; also for the character of left-handedness; likewise for pulmonary tuberculosis.

There prevails a justifiable presumption that the same principle governs also the transmission of psychical and pathological characters. The point is that what is in the germ cells will come out at some time and in a certain definite proportion according to the type of the mating. If we want sound men, strong men, intellectual men, honest men, temperate men, chaste men, wise men, they must be bred from their type.

That this is not all assumption is shown by the investigations of Galton himself in which he studied the parentage of 207 Fellows of the Royal Society. He assumed that 1 per cent of the individuals of the class represented might be expected to be "noteworthy." In the general population it is about 1 in 4000, or 1/40 per cent. Galton found that on this basis Fellows of the Royal Society had noteworthy fathers with twenty-four times the frequency to be expected in the absence of heredity; noteworthy brothers with thirty-one times the expected frequency; and noteworthy grandfathers with twelve times the expected frequency. Galton, moreover, showed statistically, by a study of the families of the Judges of England between 1660 and 1865, that the chance of the son of a judge showing eminent ability was about 500 times as great as that for a man taken at random from the population.

Schuster in a similar investigation examined the class lists of Oxford covering a period of ninety-two years. He found that the first honor men had 36 per cent first or second honor fathers; second honor men had 32 per cent first or second honor fathers; ordinary degree men had 14 per cent first or second

honor fathers. These percentages are far in excess of that to be expected—estimated at about 0.5 per cent—on the assumption that ability is not inherited.

Schuster also determined the coefficient of heredity between fathers and sons as regards intellectual ability, using class marks at Harrow and Oxford. The correlation coefficients as determined were 0.30 for the parental relation and 0.40 for the fraternal. In many forms of insanity the correlation coefficient has been found as high as 0.57 for the parental relation and 0.50 for the fraternal.

It seems clear that psychical traits are inherited in like manner and with the same intensity as physical traits. The history of the Edwards family as determined by Winship gives the very strongest evidence in favor of the heredity of mental ability. "Of the 1,900 descendants of Johnathan Edwards, of Connecticut, 1,394 have been identified; 295 were college graduates; 13 were college presidents; 65 were college professors; 60 were physicians; 100 were clergymen of renown; 75 were officers in army and navy; 60 were prominent authors; 100 were lawyers; 30 were judges; 80 held public offices; 3 were United States senators. Besides, fifteen railroads, many banks, insurance companies, and large industrial enterprises have been indebted to their management." In fact, as Judge Foster remarks, "almost every department of social progress and of public weal has felt the impulse of this healthy and long-lived family. It is not known that any one of them was ever convicted of crime." Think what it would mean for this country, if its individual citizens were preponderatingly of such superb stock.

On the other hand the Juke family illustrates most favorably the inheritance of various types of mental and moral delinquency. Dugdale has carefully traced the Juke family from the five daughters of a lazy and irresponsible fisherman born in 1720. In five generations the family increased to about 1200. The histories of about 1000 are known. 310 were professional paupers in almshouses a total of 2300 years—and at whose expense? 440 were syphilitics; more than half of the women were prostitutes; 130 were convicted criminals; 60 were habitual thieves; 7 were murderers. This family has cost the State of New York over a million and a quarter dollars—and the end is not yet.

A family recently described by Poellmann has a very similar history. This family was established by two daughters of a

woman drunkard who in six generations produced 834 descendants. The histories of 709 are known. 107 were of illegitimate birth; 64 inmates of almshouses; 162 professional beggars; 164 prostitutes and 17 procurers. 76 had several sentences in prison aggregating 116 years; 7 were murderers. This family has also cost more than a million dollars and is still very prolific.

Perhaps the most complete family history of this kind is that of the Swiss family "Zero" recently carefully worked out by Jörger. In 1905, 190 members of this family were known to be living, all characterized by vagabondage, thievery, drunkenness, mental and physical defect and immorality.

Where rests the blame for such atrocities as the Poellmann, Juke and Zero families? No one will blame it upon the persons themselves. Kellicott is right when he says that "it must be placed squarely upon the shoulders and consciences of the intelligent members of society who have permitted these predetermined degenerates to be brought into the world, and who are today taking no broadly sympathetic view of their treatment by exercising preventive measures."

Some years ago England became alarmed at its decreasing wheat supply and the prospect of consequent starvation. At the meeting of the National Association of British and Irish Millers in 1900 this matter was discussed with the result that Professor R. H. Biffen, a biologist, was employed to make a scientific study of the causes underlying the poor wheat crop, and determine means for improving the same. The specific problem was to produce from a loose-eared, well-bearded native wheat, with low gluten content and susceptibility to rust, one suited to British climate but with full beardless ear, strong straw, high gluten content, high yield per acre, and rust-resistant. We are interested here only in the attainment of that last requirement, though it ought to be stated that Biffen succeeded in producing the wheat according to specifications in 1905.

Biffen crossed the native rust-susceptible wheat with a foreign rust-resistant wheat. All of the first generation were rust-susceptible. But when seed of this generation was sown there resulted rust-susceptibles and rust-resistants approximately in the Mendelian proportion of three to one. The rust-resistant recessives thereafter bred true to type. This experiment, and others that might be mentioned, demonstrate that susceptibility and resistance (or immunity) to disease are of the nature of "unit

character" or "allelomorphs" and may be fixed or eliminated at will in plants and animals by appropriate breeding experiments.

Suppose we substitute here for rust-susceptibility and rust-immunity, predisposition and resistance to the tubercle bacillus in man. Tuberculous stock crossed with tuberculous stock can only yield like stock; similarly for many other pathological conditions, such as syphilis, cancer, heart disease, nephritis, arteriosclerosis, rheumatism, idiocy, epilepsy, etc. And a number of studies already show that this is not pure assumption nor surmise.

To cite only the investigation of Karl Pearson with respect to tuberculosis: This work yields most cogent proof that a large quota of tuberculosis is due to a hereditary diathesis or predisposition thereto. The salient facts in the proof are that tubercle germs are fairly ubiquitous, and that about 85 per cent of all individuals have tuberculous lesions before the age of eighteen, consequently if it were simply a matter of **infection** most of us would be tuberculous; furthermore, while the degree of resemblance (the correlation coefficient) between husband and wife, where there is much opportunity for possible direct infection, is only somewhere between 0.17 and 0.25 (and this Pearson regards as due largely to assortive mating), that between parents and children is between 0.40 and 0.50, and between brother and brother, who at the time of the usual onset of the disease have generally already left the home, is as high as from 0.40 to 0.60. A large amount of tuberculosis is thus undoubtedly due to a hereditary lack of resisting power or immunity, and might be more largely eliminated from future generations by wise matings and proper marriage restrictions.

The solution of our great social problems from this standpoint is primarily in the hands of the scientist, notably the physician and trained biologist. But unless they have the hearty cooperation of the publicist, the statesman, the economist, the social worker, and such institutions as the church and eleemosynary institutions and charity organizations they can do very little. First the general public must be educated. Here every one can help. Then there must be further investigations. This demands the best scientific talent available in the country. It demands also a complete and centralized system of collecting, recording and preserving statistics. This means government endowment, which in turn waits upon the intelligent and sympathetic appreciation of the importance of such work on the part of the legislator and

statesman. Then there is demanded legislative action with respect to restrictive marriage laws forbidding marriage to physically or mentally tainted stock. There is demanded also legislation providing for the sterilization of the criminal and the very defective types, upon whom no appeal on any usual moral or civic plane has effect. Then there ought to be a federal law similar to the several state laws, under which sterilization may now be practiced in the states of Indiana since 1907, Washington, California and Connecticut since 1909, and recently also in Nevada (1911), New Jersey (1911), Iowa (1911) and New York (1912). There ought to be legislation which could counteract the present conditions which tend to penalize parentage and family life, the admitted vital unit of modern society. Such legislation awaits the thought and guidance of American young manhood.

Less than a century ago England administered capital punishment for 223 offenses. This was drastic but effective in keeping the supply of criminals at a minimum. A more humane civilization has universally reduced the list of capital crimes to one or several, but has still largely failed to meet the problems of feeble-mindedness and criminality in a manner adequate to hold these maladjustments at a minimum.

Let me call your attention to another investigation of Professor Pearson's. Stated in greatest brevity, Pearson has disclosed a decided lowering of the English birth rate at a number of definite periods corresponding closely to certain factory acts reducing the economic value of children and applying to bleaching and dyeing works, to copper, steel, and iron industries; namely the Workshop Regulation Act of 1867; the Education Act of 1876; the Factories and Workshops Act of 1878; the Mines Act of 1887; and the 1891 act as to labor by women and children.

Pearson believes that the present precarious condition of England with respect to the birth rate is "a direct effect of the destruction by legislation of the economic value of the child." He advocates "reversal of all legislation which penalizes the parentage of the fit, and the restriction of all charity which favors the parentage of the unfit." "We must directly or indirectly," says he, "produce differential wages for the fit parent; in other words there must be endowment of fit parentage at the expense of the unfit parent and of childless men and women."

To quote further, "When we regard the present six or seven million pounds a year—soon to be ten or more millions—given to a mere environmental reform, which is applied long after the reproductive age and cannot possibly produce any permanent racial change, how deeply one must regret the want of knowledge and of statesmanship, which overlooked the naturally disastrous policy of the factory acts, and did not seek its opportunity to endow parentage rather than senility with those annual millions! Even as a party cry I believe the endowment of parentage would have been effective; as a step to meet grave racial dangers it would have possessed real insight." Here is occasion for serious thought and noble action on the part of the young men and women whose lives will be cast more especially in spheres of legislative influence.

The question is largely economic and it has its various social, political and religious phases which I cannot even touch upon. Charity organizations must take more intelligent note of the teachings of heredity. Just to cite one instance. There was formed four years ago a national Association for the Study and Prevention of Infant Mortality. The ideal of the society is to minimize the infant mortality rate. But very naturally infant mortality is a process of natural selection. Unless the conditions are very adverse so as to kill all the babies, only the weakest will die. But the weaker physically may have splendid endowment mentally and morally which cannot well be spared in this commercial day. But aside from this point, no method of discriminate infant conservation can be thought of. Anything less than an effort at universal salvage would be a disgrace to our civilization. But we must recognize the antieugenic effect of this attitude. Consequently we must compensate for this unfit material. Compensation lies along the line of prohibition of parenthood to the racially unfit (civically unworthy), and encouragement to greater productivity among the most fit (worthy).

I hope the main issue is clear. Or at any rate, I hope I have aroused your interest sufficiently to move you to seek and think for yourselves. Upon your thinking and action depend much of the future. And it concerns you whether you be man, or woman, or farmer, or mechanic, or teacher, or investigator, or lawyer, or what-not. You carry a sacred personal responsibility and a still more sacred national responsibility. Above all give your kindly sympathy and encouragement to the patient investi-

gator who gives his life to the study, of necessity often in the fashion of a recluse, to these questions of serious national import. Do not join that too large body who scoffs at or at best only tolerates the man who "plays" with peas and grains of wheat, or bugs or mice or guinea pigs. Upon the result of investigations into these homely, almost undignified things may depend the fate of nations.

When this nation shall have established its life upon a eugenic basis, as I believe it must if it shall survive, then of the national heroes that it stops in its toil to honor, will be the names of such men as Galton and Pasteur and Mendel. With honor still, for they did their duty as they saw it, but with pangs of pity and regret for irreparable loss, will be regarded the leader of war and of a too-short-sighted charity; but the real sons of Hercules will be those who tenderly yet sternly rid our national life of the sources of its corruption and destruction.

The remarks of Professor Schiller, of Oxford, respecting England's present attitude toward its racial unfitness seem pertinent universally: "There can be little doubt that this policy alone holds out a prospect of ultimate success; but when one reckons up the enormous weight of prejudices challenged by eugenics, the force of habit in all, the timidity and sterility of our spiritual, and the blind opportunism of our political leaders, the antiquated and unscientific education of the bulk of our cultivated classes, and the ignorance and disregard of real knowledge in which it naturally issues, it is impossible to repress a dread that any considerable measure of success is so remote that political contingencies may easily put an end to the British Empire long before the British people as a whole awakens to the fact that the national degeneration which it is at present complacently fostering is neither a process that can safely be indulged in nor yet a fatality no human foresight can avert. True, the outlook is almost as gloomy throughout the European world, but no man of science can hesitate to predict that, if so, the whole of that world must pay the penalty and that the nation which first subjects itself to a rational eugenical discipline is bound to inherit the earth."

Pills and Other Drugs Versus Drugless Medication

By NATHAN ROSEWATER, Ph. G., M. D., Cleveland

So much is said in favor of the drugless treatment of the human machine—gone wrong through “error” external or internal, or from other cause, and rectified by Christian Science, Faith, Cults and Systems galore, alleged cures miraculous, marvelous and incredible—until I have in my dreams almost been convinced that drugs and doctors will soon indeed be a drug on the market and with hosts of my colleagues I will exclaim “Othello’s occupation’s gone.”

But dreams are only dreams—alleged cures may or may not be due to the art of the necromancer, to cults or systems, but be it whatever it was, was it due to drugless therapy as claimed? No human being, since the breath of life was blown into Adam, has ever lived, even for one day, who has not been a constant patron of the chemist’s shop and has not from infancy on had numberless prescriptions filled and refilled and taken with avidity and without shuddering, dose after dose. The proof is absolute that Mrs. Eddy and every single member of her drug loathing church have not always secretly, but knowingly and constantly, been dosing themselves with drugs purchased for them—drugs that were especially made to act on mind and body, so that every alleged cure by even absent treatment was in reality effected by secretly or consciously or unconsciously procured drugs taken by the patient. These drugs which they were obliged to take were self-prepared in a most perfect and magnificent laboratory of their own, a drug-store truly open day and night, an almost perfectly equipped human laboratory, where daily millions of prescriptions are sent over most delicate telephones, accurately compounded as to weight and dosage, and dispatched by messenger to millions of stations. Rarely is a mistake made and, almost always, as soon as made an antidote is prepared and sent to correct it, except perhaps when the wires are crossed and the messages get mixed up—or when the drug-clerks or doctors are overworked through over-indulgence or over-taxation.

From all parts of this wonderful, automatically and systematically managed pharmaceutical laboratory are heard messages prescribing old or new drugs and combinations; changes made in the old prescriptions; drugs, bitter, sour, sweet, and some noxious

or even malodorous in the extreme. But be he infant or aged, Christian scientist, faith curist, or participant in absent treatment, with finicky nose or finicky stomach, there is for him no flinching or escape from these vile vials and vapors, these freshly made or stale ions, hormones, acids, alkalies, salts, ferments, antitoxins, bile, mother's milk, etc. We all of human kind have ever been and still are anxious to imbibe the various doses without cease and without murmur. However, should some wrong message be sent and the wrong prescription be filled by those in charge of the vials through some "error," carelessness or negligence; or should perhaps some nonunion "scab chemists," such as germs, parasites, etc., mix or prepare the wrong drugs, for which an antidote could not at all be prepared or be too slowly prepared; yet were such an error to be discovered by an attending regular physician and the antidote be timely prepared by a regular chemist, so as to effectually prevent damage to this human laboratory, no Christian scientist or faith curist would dare swallow it or give it to a fellow sufferer lest it might upset, if not his stomach, his dogmas and antagonisms which must, *regardless of the cost of life*, be like the laws of the Medes—unyielding.

"*Drug!*" even the name makes one shudder. 'Tis a *vile drug*, when made in some pharmaceutical laboratory, however carefully made according to the perfect laws of nature. Yet presto, change! how sweet, precious and acceptable when we sugar-coat this vile drug, under the name of life, vital principle, life's blood, mother's milk or, for that matter, put a halo around it and call it mind, which, without substance, would be powerless, unknown and unrecognizable.

With the insane, the idiot, and the densely ignorant you cannot argue. But why be obliged to teach the more intelligent what is obvious, that it is morally wrong and may be legally wrong to expect or promise more from a treatment than what can be reached by it. To promise or expect more may rob the sick of the necessary time in which to save life.

Often I have been surprised and chagrined at medical men, even of the higher ranks, giving public utterance to sweeping condemnations as to the use and value of drugs in the treatment of disease, without specific mention as to which drugs or what circumstances called for condemnation. Such unguarded expressions are unscientific, misleading and dogmatic. The fact that every physician in his own circle, be it large or small, is looked

up to as a real authority, makes his responsibility to the entire medical profession, who do prescribe, very great and to the public who trust his judgment even more so.

Such unsupported criticisms are not justified; to be so they must be based upon specific grounds as to use and failure in specific types of disease. How quickly the surgeon resents any condemnation of the use of the knife, whether coming from the lay or medical press or from those quacks who appeal to prejudice through advertisements such as: "A sure cure for cancer *without the knife!*" The medical profession must be guarded in all their public utterances and must not tolerate the sowing of such seeds of prejudice broadcast. The laity are too much prejudiced now as it is. Several years ago while listening to an address before a large medical body, I heard with astonishment the brilliant and talented speaker give vent to a broad criticism upon the use of drugs, as being of little value in the various forms of indigestion. "Far greater good," the speaker claimed, "resulting from change of diet"; whereas, in the very next suggestion he advised in certain cases a cathartic, also lavage of the stomach and colon, methods far more impractical and unacceptable for the laity than the taking of drugs. For anemia he advised Gude's Pepto-Mangen, and for other conditions Wyeth's Hypophosphites. If these are fair samples of the materia medica upon which his broad condemnation was based, I am at a loss to know whether he reached his conclusions by a trial of drugs or of nostrums. Yet this speaker's evident looseness in criticism of drugs stands in great contrast to his well earned national reputation as a critical exponent of physiologic problems.

The broad and true man of science should without bias sum up the necessary and desirable requisites for his patient and seek in any domain of rational therapeutics for aid. His selection being made—whether surgical, hygienic, mechanical, psychic, dietetic or medicamentary—he should prescribe or use with positive assurance the selected means and expect only such results from each as will be warranted by the conditions. Only the ignoramus will expect more and be disappointed.

To teach that drugs are akin to foreign substances, deleterious when introduced into the human body, is to foster a deep rooted, yes false, superstition. So in the same sense are foods, also water and even air. For there is the same inexorable law that if foods, etc., are not intelligently introduced as to quality and quantity,

time and circumstance, the food may become the poison and the so-called foreign drug the necessary missing element and antidote required for maintaining life until the normal is restored. Few indeed are the drugs prescribed that are not eliminated within a few days after being taken, leaving no trace of drug or drug effects. We should not point to the knife but to the pus or the tumor as the real foreign body; only the wrong use of the knife, as of a drug when not indicated, is what should be condemned. We should not deprecate surgery because of a bungler nor drugs because of a bungling prescriber. The value of drugs is so vast that they will bear the severest criticism, they offer advantages that are unequalled and unique. True it is that electricity, radiotherapy, hydrotherapy, fresh air, physical exercises, massage, psychotherapy and the surgeon's knife appeal more to the perceptive and receptive faculties and to the faith of our patients than the silent action of medicine, with its often obnoxious smell or taste. Yet he who is skilled in the use of drugs has at his command an agency potent for good, convenient of carriage and of ease of administration, definite in quality and length of action, often immediate in result. One requiring no loss of time, no machinery to operate, no expensive attendants, giving the prescriber time to visit others while safely trusting the repetition of the dose to keep up its action; so handy that it may be tritely said, "the medicine works while doctor and patient sleep," so practical that electricity, physical exercises and manipulations and even the surgeon's knife, etc., pale into insignificance beside it.

Thousands of ovaries and other organs were removed before we learned when not to remove them and when it should be done; thousands of limbs sacrificed, to learn when and how to save. Yet should we, because of these flagrant errors of the past, condemn the surgery of today?

I have no desire to place the use of drugs before anything and everything. All physicians agree in letting well enough alone as they feel assured that the patient will accomplish just as much or more alone. But I enter this protest against our own colleagues prejudicing their patients and friends against those of us who prescribe drugs, by telling them, as I have heard they often do, that they had been drugged almost to death, that their systems are saturated with drugs, etc. When the public later on learn to know the truth, they will see behind such expressions prejudice, ignorance, or malicious "knocking." Let us teach,

rather, the true value and almost universal harmlessness of medication when properly directed by a competent physician, its shortness of stay in the body, etc. Let us teach, rather, the antidotal or eliminative nature of medicines to poisons either already in the body or being daily taken in but insufficiently antidoted; their use to replace substances natural or necessary to the body but deficient or absent during disease, such as the internal organic secretions, hormones, antibodies, ferments, iron, calcium, etc. In other words, instead of a false, malicious dogma, *teach the truth*. Of late again this false cry is being raised against drugs by those protesting that nature provides her own defences and antidotes, but in our study of nature we find her both efficient and inefficient according to each individual situation. Just as a plant, which in time of drought droops and fails although ordinarily well able to grow and prosper, requires the gardener's hose intelligently applied to keep it from withering, just as a young sapling bent by the winds or by some abnormal defect can be made to grow straight and strong by propping it up until it grows stronger, just as certain soils require fertilizers, so does the human plant require the specific aids its defects demand. The plant needing fertilizers or water will not be saved by prayer or massage or Christian science; nor will the human plant, needing calcium or iron, find a substitute in electricity or in jolly disposition or wish.

As to those who do not like to give drugs (usually from ignorance of their value or application), faith curists, Christian scientists, osteopaths and other "pathists," who start out prejudiced against any other treatment than their own exclusive pathy, they have indeed a very narrow point of view from which they study nature. The physician of today, trained as a true student of nature, recognizes no exclusive road or pathy; every new instrument, drug, application or method, psychic or otherwise, is only one more weapon in his great armamentarium; nothing is so insignificant as to be despised if it can aid.

The unfortunate sick are indeed to be pitied if they fall into the wiles of one of these one-sided "ists" who boasts of the greater value of his "ism" and fails properly to appreciate nature's harmonious forces used with intelligence to suit each case. A physician graduating from our modern medical schools, where he is trained in all the sciences and taught the relative value and place for each, has an effectiveness compared to one of these

pathists as the music of a full orchestra compared to that of the single string of a fiddle.

There are times when a specialist is required, one skilled in one of the branches of our art. He should, however, not be credited with greater knowledge or skill than his attainments warrant. I say this not in disrespect to any "ism" or "ist" but because it is necessary to show the comparative merits of regular physicians whom some of these pathists aim to discredit and displace.

2429 East 55th Street.

A Report of Three Cases of Foreign Body in the Eye

By CHARLES C. STUART, A. M., M. D., Cleveland

The subject of Case I is a young lad, 11 years of age, who was admitted to City Hospital on August 5, last, with a small vertical wound to the outer side of the outer limbus of the cornea of the right eye. He, and another lad slightly older, had found a dynamite cap and had put it to an emery wheel to open it, with the result that it exploded and a small fragment of the metal entered the patient's eye at the point described above. The wound of entrance was clean-cut through the sclera and showed the clear vitreous in the bottom of the wound. A subconjunctival hemorrhage was noted as lying to the outer side of the wound and slightly below the wound level. A large hemorrhage was seen in the anterior chamber, occupying its entire lower half; the chamber was of normal depth and the tension was —1 to —2. Ophthalmoscopic examination was tried and found impossible on account of the hemorrhage through the vitreous preventing any view. Although the foreign body was thought to be almost certainly a piece of copper, a test with the magnet was tried as a matter of routine and found negative.

The chart of the first radiograph which was taken the next day, shows a very small foreign body located in the back part of the *vitreous* near the sclera, and the radiographer, W. C. Hill, felt a trifle uncertain as to the definiteness of his localization on account of the patient's moving his eye. The patient was kept under observation, with atropin and cleansing washes as the treatment. Slowly the hemorrhage in the vitreous absorbed until

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a fairly good view of the interior could be made out. The patient was dismissed from the Hospital and seen at the office. At the second visit a suspicious looking area appeared above the sclera in the conjunctiva with a purplish vascularization over it. Another radiograph was taken and showed the foreign body moved slightly forward. Viewed by transillumination by means of the Würdemann transilluminator, this area was seen to contain the foreign body.

A few days later under general anesthesia, the foreign body, which proved to be a small piece of copper, was removed. There now is noted a slight drawing or pulling of the iris or distortion of the pupil toward the wound of entrance, which may be due to scar tissue in and about the wound and secondly, a very poor view of the interior, due to bands or lines which seem to lie in the posterior lens capsule or near that body. The interesting features of the case are: (1) The small size of the foreign body and its ability to perforate both coats of the eye. (2) The presence of the subconjunctival hemorrhage, the significance of which was not appreciated at the time, for it is my present belief that the subconjunctival hemorrhage contained the foreign body hidden within it and it was not until that had disappeared with its consequent thickening that any indication of the foreign body manifested itself. (3). The charts of the radiographs which showed the presence of the foreign body within the eye each time the radiograph was taken.

Case II: A young man was struck in the right eye while working with an air-hammer in a small confined space in the bottom of a vessel. As the patient came from out of the city, he was not seen until about twenty hours after the accident. He then showed a small sliver of steel, one-quarter inch long, lying in an antero-posterior direction, in the anterior chamber, with its anterior end embedded fast in the cornea, but not projecting outside of it. The anterior chamber is of normal depth. The lens, capsule and iris are not involved. After instillation of atropin, an old iritic adhesion was seen, which, with a scar at the nasal limbus, are the results of a prior injury to this same eye. The application of the magnet brought the piece projecting beyond the cornea and its complete extraction was finished with the forceps. In the extraction much of the aqueous was lost. There was some reaction following the extraction and the patient was seen once again two weeks later; at this time, some finer spots,

resembling mutton fat drops, were seen on the posterior corneal surface. I have heard of the patient just last week and was told he made a good recovery.

Case III: A young man was doing some hammering and a chip flew from the hammer and struck him in the right eye. The story of the case is that immediately following the blow, there was profuse hemorrhage from the eye and the physician who saw him, thinking, from the hemorrhage, that there must be a severe cut, brought him on the train to Cleveland. A careful examination was made, immediately on arrival and a rather large conjunctival wound was seen to the nasal side of the right cornea, half way between limbus and inner canthus. Fundus examination reveals a normal eye and the patient says vision is not disturbed. Transillumination shows the foreign body lying in the deep layers of the conjunctiva, several millimeters away from the wound of entrance, and from its position, I am confident it entered by its broad side on and not by its point. Of course, extraction with the magnet was a simple matter and I have not heard of the case since the extraction. The only interesting features in connection with this case are the profuse conjunctival hemorrhage due to the manner of entrance of the steel, and the value of the Würdemann transilluminator as a help in revealing the presence of the foreign body.

Review of the Progress of Medicine Orthostatic Albuminuria

By V. C. ROWLAND, M. D., Cleveland

As a result of Richard Bright's observation in 1827 of the direct association of albuminuria to pathological changes in the kidneys, the impression prevailed in the medical profession that albumin in the urine was a positive sign of nephritis or of serious kidney disease. Necessarily the inconsistencies in this view soon became apparent. Albuminuria was soon observed to follow comparatively trivial causes, such as simple overexertion or over-eating, or without any known cause in persons enjoying good health. As the various factors in these cases were recognized a variety of names came up in the literature, such as "functional albuminuria," "physiological albuminuria," "albuminuria of adolescents," etc. From this composite class of albuminurias without other signs of disease, one type has been separated and of late years fairly clearly defined under the name of orthostatic

albuminuria, the distinctive feature being, as the name indicates, the influence of posture.

The gradual development of the recent idea of this condition is readily seen in a review of the literature. In 1910 Hooker published a comprehensive summary of the subject and divided the literature into three periods. The first ended in 1887 with a paper by Dubreuilh first suggesting the influence of the upright posture. The second period extended to 1904 and is characterized by more interest in the precise nature of the condition. The term "orthostatic" was first used. The third period, since 1904, has dealt with various etiological factors, of which there are three of especial importance: (1), A faulty development resulting in increased permeability of the glomeruli (Teissier); (2), vasomotor instability especially with diminished pulse pressure (Erlanger and Hooker); and (3), lordosis with consequent interference with the renal circulation (Jehle).

The literature of the first period obviously confused a number of different kinds of albuminuria. However, the associated symptoms and the type of persons affected are so similar to those of genuine orthostatic albuminuria as to suggest a large factor of individual idiosyncrasy in other functional albuminurias. Leube was the first to study the urine of healthy men. In observations on soldiers he found that 4.2 per cent showed albuminuria in the morning after a night's rest, but that 16 per cent showed it after a march. Others found it in varying amounts after mental exertion, during digestion and after cold baths. Moxon characterized the functional albuminuric as listless and languid, and dull and anemic in appearance, readily fatigued and with a tendency to headache, coated tongue and mental sluggishness. Dubreuilh divided the cases into three classes: (1), transitory albuminuria, acute or accidental; (2), chronic albuminuria without any distinct periodicity; (3), periodic, intermittent albuminuria—the cyclic albuminuria of Pavy. The third class of course includes most of the cases of orthostatic albuminuria. In the etiology of these cases, age and sex were given an important place, young men being by far the most frequently affected. Moxon observed the condition often in several members of the same family. Teissier believed there was a gouty or rheumatic factor in some cases. The urine is usually slightly diminished in quantity with the specific gravity normal or slightly increased. Calcium oxalate crystals and uric

acid are quite constantly associated with the albuminuria. The quantity of albumin is not usually in excess of one gram per liter.

During the second period, the etiology was more closely studied and the orthostatic type more clearly defined. It was recognized as most common at the age of sixteen to twenty-two years and in individuals of definite vasomotor or nervous instability with a tendency to easy fatigue. The term essential orthostatic albuminuria was introduced to differentiate the cases in which there had been no previous infections, especially scarlet fever, from the cases in which there might be some organic disease. The most striking change of opinion was with reference to prognosis—the selflimited course proving that albuminuria *per se* was not a serious condition.

The literature of the third period since 1904 has dealt largely with the three above mentioned additions to the etiology. Whatever other factors are at work there seems to be undoubtedly a developmental defect resulting in increased permeability of the glomeruli. Coming at the period of adolescence in individuals usually with underdeveloped cardiovascular systems with low blood pressure and marked nervous symptoms, the condition would seem to be due to some disparity between the functional power and the demands of the body. The almost constant albuminuria of newborn infants has been considered as evidence, by analogy, of this lack of adaptation. The albumin has been shown to be largely serum albumin and not globulin, as originally believed. This would imply a filtering through the glomeruli rather than any disease of the renal epithelium. The frequent and long observed association of calcium oxalate in the urine with orthostatic albuminuria has not been satisfactorily explained. Oxalates, when not coming directly from food stuffs, such as rhubarb, are associated, so far as is known, with intestinal fermentation and some say especially in the nervous derangements. Possibly the oxaluria of orthostatic albuminuria is of similar origin.

Wright and Ross have used calcium salts therapeutically in these cases on the theory that there is an anomaly in the blood condition. The various skin conditions which are often associated with this type of albuminuria, such as eczema, erythema and urticaria, have also been similarly treated with some success.

Erlanger and Hooker in their observations found that there was no constant relation between the occurrence of albuminuria and either the systolic or diastolic pressure, but that there was

quite a constant inverse relation between the pulse pressure (difference between the systolic and diastolic pressure) and the albuminuria. In other words a low pulse pressure seems to induce albuminuria. The same conditions obtained in the albuminuria following exercise. Marathon racers were examined immediately after the race and a short time later. In the first tests there was little if any albuminuria and the pulse pressure was high; at the second tests there were albumin, casts and even red blood cells and the pulse pressure was low. The inference is that the vasomotor instability and the ready fatiguability of orthostatic albuminurics render them more susceptible to exertion than normal individuals.

A great deal has been written on the relation of lordosis to albuminuria. Presumably the lordosis at the first and second lumbar vertebrae interferes with the circulation of the kidney. Since there is no rise in the general blood pressure and the oncometer shows an increased kidney volume, the change is regarded as venous hyperemia. Jehle in observation on 300 children thought that the lordosis was the only factor of importance in the production of the albuminuria. Lordosis artificially produced, by a kneeling posture or by a pad under the lumbar spine, is claimed to produce albuminuria in a healthy child. Fischl observed albumin, casts and red blood cells in the urine after experimental lordosis in rabbits. There is said to be no relation between the degree of lordosis and the amount of albumin. Most observers think there are other factors than lordosis in the causation of the albuminuria. Goetzky, in fact, denies the influence of lordosis, stating that real orthostatic albuminuria disappears immediately in the prone position, while the albuminuria of artificial lordosis lasts five or six hours. Some writers, believing that lordosis tends to bring out a latent albuminuria, have used the kneeling position as a test of renal function. Some have claimed that children who show an albuminuria by this test are more apt to develop a nephritis after scarlet fever than children with a negative test. Others deny this entirely. Recent literature recognizes that a few casts may accompany albuminuria without added significance.

Of other mechanical factors, a low position of the diaphragm with consequent traction on the vena cava and renal veins has been assumed in certain cases of adult orthostatic albuminuria. Movable kidney has also been accused and catheterization of the

ureters has shown the albumin to come from one side. The French long ago pointed out the relation of albuminuria and tuberculosis, using the term pretuberculous albuminuria. Weber believes, however, that this has been exaggerated because of the similarity in the type individuals (tall, thin, flat chested, with winged scapulae). Goetzky in a large number of cases was unable to find any larger proportions of positive von Pirquet reactions in children with orthostatic albuminuria than in control children. However, a large proportion of cases with pulmonary tuberculosis will show an albuminuria after being on their feet for an hour or more.

The modern view of orthostatic albuminuria, then, is that there is an increased permeability to the serum albumin of the blood due to vasomotor instability with low pulse pressure and this in turn being due to a relatively undeveloped state of the cardiovascular system at a time of rapid growth of the body, and further that various mechanical factors such as lordosis probably influence the condition.

Medical Sociology in Civic Betterment:—The medical profession, measures, Weyl's lead tabes is far from being a rare condition in our country; that instances of it can be found in every town where there are lead industries of a dangerous character, and that it is not even a vanishing condition, for new instances of lead tabes are being added to the number every year.

Surely there is every reason why we should devote to this disease the same intelligence and energy that we devote to other preventable diseases. There are many problems waiting solution. We need research into the question of sex susceptibility, of race susceptibility, of the influence of summer heat, of the influence of muscular fatigue; we need, above all, research into the different lead trades of our country and the different forms of lead-poisoning that they produce, the localization of palsies, the frequency of encephalopathies. As it is now, it would be hard to point to any disease equally prevalent, equally serious, equally controllable, which has been so neglected by the medical profession in America as industrial lead-poisoning.—Alice Hamilton, *J. A. M. A.*, lix, 777.

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EDITORIAL

Investigation of Contract Practice by the State Association

The President of the Ohio State Medical Association has appointed the following a committee on contract practice: Charles Graefe, Sandusky, Chairman; Oscar T. Schultz, Cleveland; George Strohbach, Cincinnati.

Contract practice from time to time has received a certain amount of attention from various local societies, usually because of local conditions which were tending to become intolerable. But action, if any is necessary, can come with greater value from state societies than from local organizations, since the trend of the legislation of today is toward general welfare measures, some

of which may concern the medical profession. What the individual physician's attitude may be toward those political policies which adherents term progressive and opponents paternalistic or socialistic, is a matter for the individual himself. But when the very essence of certain of these measures is the service given by the physician, then it behooves us, as a profession rather than as individuals, to be prepared to see that proper valuation for our services is given. The medical profession must know in advance of possible legislation what it wants and it should be unanimous enough in this knowledge to have its opinions and its desires carry some weight. Capital and labor are well organized; they know what they want to obtain through legislation and they know how to go about getting their desires. The effects of lack of cohesion and of failure to perceive and appreciate the trend of events have been sufficiently illustrated within the past year.

Every reading physician must be familiar with the problems which the Insurance Act of Great Britain has brought before our British colleagues. One of the most important features of this act is the rendering of medical service to a certain and rather considerable proportion of the population—at prices fixed by the government. That the unjustly low prices for this service, named in the original act, were in part the result of the British profession's inability to recognize problems as such until the incorrect answers had been furnished by someone outside the profession, would seem to be borne out by the later concessions in regard to the fees for the medical work. More important than failure to see the particular problem presented by the act with sufficient unanimity to prevent unjust legislation was the inability to recognize, in the making, other problems which had as a natural end result the fees named in the act. If we may credit the information that Mr. Lloyd George arrived at his original figures by adding 20 per cent to the average fees for which medical service is rendered to clubs and friendly societies, then the government is not to be blamed if it considered that it was dealing in generous fashion when it offered so considerable a bonus over fees which the profession had permitted to become established without adequate protest. This preliminary problem of lodge and club practice, the fees for which may later form the basis of payment for services rendered through the state, we already have with us.

It is not necessary, however, to look to Great Britain to see the results of legislation which demands medical service. The Workmen's Compensation Act of Ohio has been in operation since the beginning of the present year. Already there are evidences that the medical profession has been unfairly dealt with, and the dissatisfaction will become greater when those manufacturing concerns, which now have fair and just contracts with physicians for emergency work, accept the terms of the act and have their work done under its provisions. It is said that the fee schedules for the payment of medical services rendered under the act have been prepared by a physician not even enough in sympathy with the ideals of his profession to have affiliated himself with his local organization. Whether this may be true or false is not so important as that the schedules have been prepared by an individual rather than by the profession as a whole and that many physicians consider the payments inadequate. Moreover, the fundamental provision as to a maximum payment of two hundred dollars for medical services, hospital bills, medicines, dressings and nursing was written into the measure without consultation with the medical profession of the state. The general principles underlying the Workmen's Compensation Act may be entirely just. But the terms of payment for medical services rendered under this and similar measures should be promulgated by physicians rather than by politicians.

Because of the injustices mentioned, because of the bearing that lodge and other contract practice may have in the fixing of fee bills for work done under state enactments and because of the undoubted trend of state legislation toward even further control of similar medical work, it is necessary that the profession throughout the state should have definite opinions as to the payment for the services rendered. It is, therefore, suggested by the committee that during the winter these and related matters be made the subject of earnest and careful discussion by the county societies of the state and that copies of the information gathered, of the conclusions reached and of any resolutions adopted be sent to the chairman of the committee.

Occupational Diseases in Cleveland

The Board of Health has recently established a Bureau of Occupational Diseases, for the investigation of these diseases in Cleveland, under a properly qualified Director, in order that

measures directed towards their control should be established on a basis of facts. Their action is in line with the growing appreciation throughout the United States that our knowledge of the conditions under which many of our industries are carried on is of the vaguest description. The widespread character of this appreciation is shown by the federal action in controlling the kind of phosphorus used in the manufacture of matches, the state action in establishing commissions in several of the states for the investigation of special diseases of this character and for the reporting of their incidence by physicians, and by the municipal action of several of the larger cities in requiring a similar reporting of cases. While the logical sequence is of course reporting, investigation of the results indicated by the reports, and attempts to improve the conditions, it is not always practicable to follow this order. It is an unfortunate fact that the average physician does not take the reporting of disease seriously, and our statistics and information even about the reportable diseases are thereby decreased in value, so that unless interest in the reporting of the occupational diseases is stimulated the mere list of reported cases will be no more at the best than an indication. State commissions are hampered by the magnitude of the task of reaching all the places concerned with even one industry, and the efficiency of the investigation may be hampered by a great variety of conditions. But if the larger manufacturing centers established bureaus of the type just established here, obtained the services of a competent director, and the cooperation of the profession, so much could be accomplished even in the absence of an ordinance requiring reporting industrial diseases, that in a short time the passage of the ordinance would follow as a matter of course.

That Cleveland should be active in this matter is especially suitable, on account of the large growth of the city in the last few years, and the great increase in many industries which involve occupational dangers, such, for instance, as the automobile industry. Clinicians have noted a conspicuous increase in the number of cases of lead poisoning and other similar conditions, and unless improvements are made this increase will be progressive.

Work along these lines is made easier by the growing appreciation that the condition of the worker has a marked influence on the quality of the work, shown by the tendency to limit the number of hours of work, and to control the working hours of the weak and the undeveloped. The increase of the workmen's

compensation movement and legislation, and the consequent direct financial responsibility of the employer have shown the value of the reduction of industrial accidents. Moreover, the actual humanitarian interest in the individual worker, while perhaps originally stimulated by the direct financial bearing, has passed that stage, as shown by the welfare work in so many of the larger manufactories. But even with these aids there is a very real ignorance of many of the dangers in the industries among those concerned with their direction, and the establishment of a bureau of occupational diseases in a city of the type of Cleveland has possibilities which can scarcely be exaggerated, and which with the hearty cooperation of the profession can have an early fruition. The Board of Health is certainly to be congratulated on its action and it is to be hoped that the municipality may see its way as soon as possible to finance the new bureau in a thoroughly adequate manner. —————

Doctors Who Can Write

There is something pleasing about the medical man who can write of other than purely medical things. There are so many doctors who can put down upon paper scientific findings and the results of researches, so many more who can write textbooks and case reports. But there are so few who can write well or at all of things not related to medicine or who can write in lighter vein of professional matters, that we admire this smaller group for the possession of a faculty that most of us have not. True, there are innumerable others who do have this faculty and who are not trained in medicine, but its possession by a doctor is an added accomplishment which makes him a little different from the rest of us. It is hard to decide whether we love a certain former professor of anatomy most because he wrote the "Contagiousness of Puerperal Fever" or because he gave us "Elsie Venner" and made us friends with an "Autocrat" and a "Professor." We are quite sure that we prefer the "Adventures of Sherlock Holmes" to any case histories which his doctor creator did not but might have written.

One of the doctors who can write something else than a textbook of surgery is James Gregory Mumford. In "A Doctor's Table Talk,"* he has written entertainingly and well of the physi-

**A Doctor's Table Talk*. By James Gregory Mumford, M. D., Lecturer on Surgery in Harvard University, etc. Cloth, \$1.25 net. Houghton-Mifflin Company, 4 Park Street, Boston, 1912.

cian's relations to his colleagues and to his patients. He does more than this—he permits his fictitious friends to discourse upon the woman suffrage movement and upon the “flapdoodle” character of certain medical advertising. And the latter is done in such a frank way that one imagines that one can identify the publication in question. This frankness is one of the charms of Doctor Mumford's very pleasant little volume, a quality for which we are grateful, even if we cannot always agree with the delightful group of pseudonymous doctors to whom we are introduced.

For many of us the greatest interest in the book will lie in the references to Doctor Optimus. In a prefatory note the author protests against attempts to make real people of the “fictitious persons” who discourse for us. “There is one exception: Doctor Optimus is that remarkable man, Dr. Edward Fitch Cushing, of Cleveland, and my very dear friend, now dead.” So much admitted, one feels rather sure that the letter on pages 117 and 118 is not an imaginary thing contained in an epistle written by a fictitious Primrose to an even more nonexistent Scriba, but that, carefully filed away where the hands of friendship can come very readily upon it, Doctor Mumford has that identical letter, written to him by his very dear friend. At the very least, it is just such a letter as Doctor Cushing could and would write. Those who knew Doctor Cushing and who realize, now perhaps more than ever, how much he meant as friend and counselor and physician, will appreciate the tribute on pages 119 and 120:

“Omne crede diem tibi diluxisse supremum was truly part of Optimus's creed; but I cannot help feeling that that brave fellow's death was an offense to medicine. And does it not give one a catch in the throat to read those fine, ringing, inspiring words, posthumous, as it were, from a man who led the life for all there was in it. That was a physician of the sort for which the world will always cry—of a species almost extinct. Useful and self-sacrificing as are many of our laboratory men, I am growing a little tired of hearing them proclaimed the heroes of medicine. What in civil life could be more heroic than the career of Optimus? With a mind of the finest, and the whitest of souls; generous as a woman, gentle-spirited as a child; worldly-wise from long training, but great-hearted, charitable, and infinitely kind—his was a character of which it is an inspiration to think. He was splendidly equipped for his work. His broad

interests and wide-ranging thought interpreted the needs of the time. He was brilliantly qualified to practice either as surgeon or physician, for such was his training. Finding to hand, however, a surgical colleague of sympathetic mind and progressive views, Optimus abandoned surgery, and for twenty years devoted himself constantly, untiringly, generously, superbly to that humble calling—the practice of general medicine. Modest, retiring, silent, he did his own work and no other. In a measure he had his reward. In all things medical, and in much else, the great community in which he lived became his devoted subjects. In any field of service he would have shown. . . . He might well have been a national figure; but he was content with a career which the absurd fiction of today regards as humble and commonplace. He was simply useful. His was a life of service to thousands of his fellow men.”

Needless Cruelty

One of the local evening papers has recently treated us to its idea of what constitutes a medical discovery by giving up half of the front page to a “sure cure” for tuberculosis, the account being embellished with a two line head in sixty point black capitals. The “editor’s note,” which opened the account contained such extravagant phrases as “exclusive cable,” “every confidence in its truth—a wonderful, glorious truth,” “greatest piece of news printed in any paper,” and so on *ad nauseam*. A German was the hero of this “discovery.” A short while before, the same paper gave equal prominence to a serum cure, so called, for cancer—this from France. We await in great suspense the scientific contributions to scare-head journalism by Great Britain, Russia, Italy, Madagascar and Java.

It may have been purely accidental that the “discoveries” related to cancer and tuberculosis, but it appears odd that within so short a time there should be heralded cures for the two diseases which engender the greatest load of hopelessness in the human mind. That a newspaper could be guilty of downright mendacity in such enterprises is inconceivable. Even if the paper is misled, even if its “distinctly skeptical, Missourian” correspondent is misinformed, the harm done is too great and the needless cruelty too severe. It is much more comfortable to one’s belief in humanity to feel that the mistakes made in publishing such matter are due to lack of intelligence.

Sometime—but not soon, and somewhere—but not in Cleveland, there will arise a newspaper editor with enough insight into the workings of the really scientific mind to know that discoveries, such as cures for tuberculosis and cancer, are not made over night and that the first knowledge of them will not come through untrained correspondents. He will realize that scientific discoveries, if they are real discoveries, must be based upon facts, that these facts are usually painstakingly acquired, and that the scientist is always so much more anxious for truth than for notoriety that he publicly submits the question of the correctness of his preliminary facts to his peers before going on to the later ones which may terminate in a discovery. When, if ever, a serum ~~are~~ for tuberculosis or cancer is found the average doctor will have known of the trend in that direction long before the daily newspaper has awakened to the knowledge that anything has been going on. In the meantime, it would be better to leave science to scientists—and pseudoscience alone. One line of truth is better than a whole page of misinformation, if the tendency of the latter is to raise false hopes concerning disease. And to get that one line of truth in regard to a supposed scientific discovery the newspaper editor should go to one who has some knowledge of the ways and workings and of the aims and ideals of science, rather than to another newspaper man.

Department of Therapeutics

Conducted by J. B. McGEE, M. D.

Urotropin: In the *Boston Medical and Surgical Journal* for October 24, O. R. T. L'esperance and Hugh Cabot consider the excretion of formaldehyde by the kidneys of patients taking urotropin. The extent to which the medical profession has come to depend upon formaldehyde containing drugs as urinary antiseptics is perhaps greater than we realize. Their use has become part of the routine management of all infections of the urinary tract except in the lower portions, and we hesitate even to examine a patient with instruments without the previous administration of these drugs. The group of drugs of which urotropin is best known depend for their action upon formaldehyde, into which they are decomposed in the kidneys. We have assumed, and it now appears without sufficient warrant, that if the drug was decomposed by the kidney of one patient it would be decomposed by the kidney of any patient, and we have therefore assumed that we could regulate formaldehyde in the urine by the dose of urotropin by mouth. It has, of course, been noted that certain patients with colon bacillus infection did much better on these drugs than other patients with a similar infection, but this we laid to the idiosyncrasy of the organism rather than of the patient. The work of Burnam, shortly to appear, brings forward disquieting evidence to the effect that only about one patient in two is able to break urotropin up in such a way that any formaldehyde at all appears in the urine. If this experience is confirmed it means that little over one-half of our patients

receive any urinary antiseptic at all and that we have been relying, at times implicitly, upon a perfectly inert medium. It further means that until some new formaldehyde containing drug is discovered, we must test the urine of every patient to whom we give one of this group of drugs before we assume that any benefit is to be expected from its use. Clearly, their routine administration in typhoid fever must be accompanied by evidence of their reduction into formaldehyde in order to justify the practice. We must give over our implicit reliance on them until such time as our brethren of the chemical and pharmaceutical laboratory produce some formaldehyde containing compound which is reduced with certainty by the kidney. The deductions reached are confirmatory of Burnam's work and the conclusions are: 1, Formaldehyde appears in the urine of only 52 per cent of patients taking urotropin. 2, The reaction of the urine is of no importance. 3, Alkalies taken with or in combination with urotropin have no effect on excretion. 4, The duration of the excretion of formaldehyde is about four to six hours. 5, Increase of dosage does not affect excretion in negative urines. 6, Urotropin is practically symptomless in average dose. 7, The urine of all patients taking urotropin should be tested for formaldehyde. 8, Patients not excreting formaldehyde are symptomless regardless of the amount of urotropin.

Bismuth: In the November number of the *American Journal of the Medical Sciences*, Louis M. Warfield treats of bismuth poisoning. He presents a resumé of the subject and deduces a rather typical picture which differs from the poisoning of lead and of mercury. There are three stages: 1, Benign, where the violet-black line is the only manifestation. 2, Moderately severe, where there is stomatitis, more or less acute, to which succeeds a chronic stomatitis characterized by discoloration of the gum margins and tattooing of the mucosa, which extends to the buccal cavity. 3, A severe form characterized by a longer duration of the stomatitis; the margins of the gums and the tattoo-like plaques ulcerate, secondary infections supervene and general symptoms, as fever, hiccough, vomiting, diarrhea and albuminuria, occur. The line on the gums is usually the first symptom of the poisoning, but occasionally there are plaques on the buccal mucosa like tattoo marks; the color is the same in all, a violet-black. In the literature there are reports of more than twenty deaths caused by the administration of bismuth preparations internally or as dressings for large raw wounds (burns particularly). There are numbers of moderately severe poisoning such as Warfield reports. Verbal and written communications to him show that there must be many cases of rather severe poisoning following the use of Beck's paste which are not reported in the literature. Beck naturally defends his paste, and in several articles has stated his conviction that the toxic effects are the result of nitrite poisoning. His position does not seem to be tenable in view of the weight of evidence that bismuth itself is at times quite toxic to the human organism. It seems to be established from the data collected that the indiscriminate use of bismuth subnitrate, in sinuses or in the intestinal canal, is not devoid of danger. It would seem that one should take care that the paste in sinuses is gradually extruded; should it remain deep in the sinus, it should be removed after a few days. In using it for X-ray work in the intestines, it appears best to withhold it in inflammatory cases or in cases where patients are much run down in health. Substitutes, such as carbonate of bismuth and oxide of iron, have been recommended and are now being extensively used. In conclusion, it would seem that bismuth salts, like lead and mercury salts, may cause definite and characteristic symptoms of poisoning in more or less susceptible persons. Peculiarly characteristic of bismuth stomatitis is the whitish, diphtheritic membrane which caps the ulcers. The visceral lesions caused by bismuth also show that it is one of the metallic poisons and therefore should be used with caution.

Pneumonia: Solomon Solis Cohen, in the *International Clinics (Volume III, 22nd Series, 1912)*, reports as to the effect of massive intramuscular injections of double hydrochlorid of quinin and urea in the treatment of pneumonia. He does not advocate the use of quinin or of quinin and cocain as a specific treatment for acute lobar pneumonia, but he believes it assists the patient to recovery. He believes that the combination of fresh air, alkalies, quinin in large doses under the skin (preferably quinin and urea), proper food, appropriate stimulation when needed, also saline infusion and oxygen if needed, will save many patients that might otherwise die. In advocating this line of treatment, however, he does not oppose the treatment by bacterial products, which he thinks extremely valuable. The advantage of quinin and urea hydrochlorid over other quinin salts are great solubility and apparent higher efficacy. The objection brought against its hypodermic use is the frequent occurrence of cellulitis, abscess or slough. This may be averted by observing a few simple precautions. In the first place, all the instruments to be used are sterilized by boiling. The skin over the part into which the injection is to be made is cleansed with green soap and water, and then an area some two inches in diameter is painted with tincture of iodin. A high-pressure syringe is used, and the long needle attached thereto is plunged deeply into the muscle. Care is taken to expel all the contents of the syringe, so that in its withdrawal none of the solution shall be dropped on the surrounding tissue. The puncture is sealed with iodoform collodion. Or a piece of rubber tissue dipped in bichlorid solution may be stretched over the skin and the puncture made through this protective and sealed with plain collodion. In more than twenty years he has had no worse accident than a transient swelling, when the precautionary routine has been followed. He uses by preference a 50 per cent solution of the drug in hot sterile water, but when the capacity of the syringe available is less than 2 ccm a stronger solution may be used; one simply dissolves the dose of the quinin in as much hot water as the syringe will hold. Hot water will take up nearly its own weight of the drug; thus 15 grains will dissolve readily in 20 minims (or even less) of hot water. He has not seen any local harm from the concentrated solution when due care has been observed in accordance with these directions. The site of the injection may be the arm, back, thigh, buttock or any convenient place where there is sufficient muscular tissue.

Drug Effects: *The Therapeutic Gazette*, in the October number, comments editorially on the untoward effects of drugs. Frequently the administration of a remedy which is strongly indicated to meet some condition of the patient produces side effects which are so unexpected and unlooked for that they greatly mislead the physician. Quinin and the iodids are the drugs which most commonly produce disagreeable collateral symptoms, but it is not to be forgotten that many other remedies occasionally do so. Burnett and Royer, in the *Medical Fortnightly*, report several cases, one a case of atropin poisoning in which a woman had by mistake used a solution of atropin hypodermically instead of morphin. They report only two such cases on record, but one was recently also reported by Starr of New York. In another case, a young man of powerful physique was supposed to be suffering from general paresis and had marked delusions of grandeur. In this instance it was found that he had taken no less than one pint of absinthe between 2 and 5 p. m. on an empty stomach. Two cases of veronal poisoning are also recorded, in which the continued use of veronal produced mental hebetude, thickness of speech and finally violence. In one case, 60 grains of veronal were taken within a few hours and the patient became comatose for a period of thirty hours; this was followed by a period of extreme violence. The bromids sometimes produce mental disorders quite the reverse of the mental hebetude which commonly develops when they are freely administered, violent forms of delirium sometimes developing.

Several cases are reported, in one of which a woman of thirty-five years took 1100 grains of sodic bromid in less than twenty-four hours. After becoming stuporous and unconscious she developed maniacal paroxysms, and later confused delusions and hallucinations, hearing voices and seeing persons that were not present. A man forty-four years old, after an alcoholic debauch, took four ounces of bromid; he became delirious, violent and finally stuporous, remaining unconscious for forty-eight hours, during which time carphologia and delirium with fecal and urinary incontinence developed; he eventually made a good recovery. Another man thirty-eight years of age took no less than 480 grains a day until 3360 grains were taken in a week. His hallucination consisted in thinking a dog was following him. He also had disturbances of orientation and loss of time sense. Recovery ultimately ensued. The method of treatment to be employed in these cases consists in utilizing measures which will aid in the rapid elimination of the drug which has produced the symptoms and the employment of drugs which are antagonistic to the symptoms produced by the poisons ingested. Purgation, enteroclysis, electric cabinet baths and hot packs are also advantageous.

Migraine: John Monro Banister, in *Merck's Archives* for October, believes that it may be affirmed as a definite proposition that he will be most successful in the treatment of migraine who will diligently and systematically ferret out the various exciting or contributing causes and give them intelligent consideration, while at the same time paying attention to the neurotic state of this unfortunate class of patients. All sources of reflex irritation must be removed, and cases of autointoxication also afford much food for thought. In this connection it should be borne in mind that many cases of hepatic insufficiency have their starting point in intestinal disorders, the toxic products of such disorders being carried directly to the liver through the portal circulation and exercising a most deleterious effect upon that most important organ, with a temporary derangement of its highly complex functions. In general terms, the treatment should include careful and appropriate remedies, and regulation of the diet in the several digestive conditions at fault; endeavoring to correct improper gastric or intestinal secretion; to remove the poisonous products of intestinal putrefactive processes by a course of antiseptics; to promote proper daily evacuation of the bowel tract; to reestablish the normal action of the liver cells, in which connection may be mentioned the valuable results following the administration of the biliary acids. In the general treatment of the migrainous habit the diet and daily hygiene should receive careful attention. Seguin, Saiker and others strongly advocate the use of cannabis indica up to tolerance, beginning with eight or ten drops of the fluid extract and gradually going up to as high as thirty or possibly forty drops. The remedies recommended to relieve the pain of the immediate attack are almost numberless. They are pure palliatives. The occurrence of the attack of migrains may sometimes be aborted by nitroglycerin or amyl nitrite at the very commencement of the initial symptoms, causing relaxation of the spasm of the cerebral vessels; and sometimes the course of the seizure may be shortened by intestinal eliminative treatment.

Spasmodic Asthma: In the *Medical Record* for November 9, Bernard Oettinger submits a rational treatment for spasmodic asthma that has proved useful to him during a period of eight years. The procedure is not a cure-all. Strict attention to details of treatment aside from the giving of medicines is demanded at all times. Furthermore, it is greatly efficient in uncomplicated cases only. There is little to be said regarding prophylaxis. Experience has taught him that aside from local irritants, such as dust, irritating gases and impure air, there are four conditions which act as exciting causes of asthma in predisposed persons. These are sudden disturbing emotions, continued anxiety, physi-

cal overexertion, and various infections under the names of "colds." In practice the patient is probably visited the first time during an attack. He should be given ten grains of blue mass or its equivalent of calomel with soda. If the patient is suffering intensely he does not hesitate to give one morphin and atropin subdermal injection as part of the initial treatment. Both morphin and alcohol during the treatment are interdicted, as both retard elimination. Whether or not morphin is given, several watery stools must be obtained the following morning from a sufficient dose of salts. For constitutional treatment he depends upon sodium iodate, an energetic methemoglobin producing drug. The adult dose is four or five grains given at intervals of four to six hours. Some appropriate nourishment, solid or liquid, is given at the same time; one grain of caffein citrate may be added to each capsule of iodate. As a rule, the mercurial purge given once is sufficient, but may be repeated if the attack is not markedly better in twenty-four hours. Conditions and manner of life must be carefully investigated in all cases. Medicine alone will cure no case of asthma. Diet must be rigidly supervised, yet the patient need not be starved. Practically, benefit from the sodium salt recommended is limited to those cases in which asthma appears as yet as a functional disturbance. As the result of considerable experience it may be stated that sodium iodate is a specific for the paroxysms of simple, uncomplicated, spasmodic asthma. Moreover, by repeatedly conquering the attack, the cure of this affection, which gives the impression of a vicious metabolic habit, is finally achieved.

Organic Iodin: Franklin C. McLean, in the *Archives of Internal Medicine* for November, considers the pharmacology and the therapeutic value of the organic iodin preparations. The introduction within recent years of numerous organic iodin compounds as substitutes for the iodids, the extravagant claims made for some of them by the manufacturers, both as regards therapeutic efficiency and absence of toxic effects, caused him to review the entire subject of their value therapeutically. His conclusions are: 1, Up to the present it has not been shown that the organic iodin preparations, with the exception of preparations of thyroid, have any specific action in pathological conditions, except the action of iodin after separation from the molecule. 2, The iodized proteins seem to be of advantage for therapeutic use only in so far as they avoid gastric irritation. The more stable compounds are apparently not entirely split in the body and are therefore not well utilized, while the less stable compounds have no advantages over the alkaline iodids, either as to local effects or as to rapidity of absorption and excretion. 3, The iodized fats and fatty acids appear to have some advantages when the continuous action of small amounts of iodin is desired. They are more slowly and evenly split and the amount of available iodin in the blood does not vary from time to time to the extent that it does when the alkaline iodids are administered. The use of the iodized fats in such conditions as arteriosclerosis, bronchial asthma, lead poisoning, etc., probably has some rational basis, therefore, on physiological grounds. These substances are also as a rule nonirritant to the stomach. 4, The difference in frequency of iodism is probably due to the difference in the amount of available iodin present in the body at any one time. When large amounts of iodin are desired, as in cerebrospinal syphilis, avoiding the danger of iodism would be at the sacrifice of therapeutic efficiency. 5, The use of organic iodin preparations with toxic side actions, due to the molecule or its splitting products, should of course be discouraged. The products of iodin with the higher fats and fatty acids are generally free from toxic actions.

New and Nonofficial Remedies

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American

Medical Association for inclusion with "New and Nonofficial Remedies."

Casoid Diabetic Flour is a mixture of the albuminoids of wheat (gluten) and of milk (casein) composed of approximately, proteins, 84.5, fat 1.4, mineral matter 2.5, cellular fiber, etc., 0.7, water 10.8. Employed in cases where carbohydrates are contraindicated, such as diabetes, amylaceous dyspepsia, etc. Thos. Leeming & Co., New York (*Jour. A. M. A.*, Nov. 2, 1912, p. 1622).

Paratophan is methyl-atophan, 6-methyl-2-phenyl-quinolin-4-carboxylic acid. Its action, uses and dosage are the same as atophan. Paratophan tablets contain paratophan 0.5 gm ($7\frac{1}{2}$ grains). Schering & Glatz, New York (*Jour. A. M. A.*, Nov. 2, 1912, p. 1623).

Phenoco is a preparation of coal-tar creosote and higher phenol-homologues in soap solution. It is stated to contain 8 per cent coal-tar creosote (obtained by the destructive distillation of coal and containing 15 per cent cresol but no phenol), 62 per cent higher phenol-homologues (phenols containing two or more methyl groups) and 30 per cent soap. It is miscible with water forming an emulsion. It is an antiseptic and germicide, being in the latter respect 15 to 16 times as strong as phenol, and for mammals about one-half as toxic as phenol. It is used in dilutions of 1 per cent to 5 per cent or higher. The West Disinfecting Co., New York (*Jour. A. M. A.*, Nov. 9, 1912, p. 1717).

Tuberculins represent the toxins of the tubercle bacillus. They may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacilli themselves. In the latter, or emulsified form, tuberculin is known as tubercle vaccine, and might be classed with the "Bacterial Vaccines." Supplied in the following forms:

Tuberculin Bacillen Emulsion, Tuberculin B. E., is a suspension of ground tubercle bacilli containing 5 mgm of the solid tubercle substance to each ccm.

Tuberculin B. E. Bovine is made in the same manner as the foregoing, except that the tubercle bacillus used is of the bovine type.

Tuberculin Old (Tuberculin O. T.), preserved with trikresol in 1ccm vials.

Tuberculin O. T. Bovine is made by the same process as the foregoing except that the organism used is of the bovine type.

Tuberculin Bouillon Filtrate is preserved with 0.4 per cent trikresol in 1 ccm vials.

Tuberculin B. F. Bovine is made in the same manner except that the bovine type of tubercle bacillus is used.

Tuberculin T. R., Tubercle Residue, is a suspension of 2 mgm of tubercle substance in each ccm of the finished product.

Tuberculin Ointment (Moro Ointment) is a mixture of 50 per cent each anhydrous wool fat and Tuberculin O. T., human strain.

Tuberculin for the Thermal Reaction contains in each ccm 1 mgm Tuberculin O. T. Cutter Laboratory, Berkeley, Cal. (*Jour. A. M. A.*, Nov. 9, 1912, p. 1717).

Afridol, sodium hydroxymercuric toluylate is a white powder which does not respond to ordinary reactions of mercury, the mercury being in a nonionized form. It is supplied only in the form of Afridol Soap, which contains 4 per cent afridol. Used as a disinfectant for the hands and instruments and for the treatment of parasitic diseases. Farbenfabriken of Elberfeld Co., New York (*Jour. A. M. A.*, Nov. 23, 1912, p. 1887).

The following articles have also been accepted:

Cycloform, Farbenfabriken of Elberfeld Co.

Hexal, Riedel & Co.

Hexal Tablets, Riedel & Co.

Glycotauro, Hynson, Westcott & Co.

Glycotauro Tablets, 5 grs., Hynson, Westcott & Co.

Glycotauro Pills, 1 gr., Hynson, Westcott & Co.

Mercurial Ointment Improved, H. K. Mulford Co.

Capsules Mercurial Ointment Improved, H. K. Mulford Co.
 Novatophan, Schering & Glatz.
 Novatophan Tablets, Schering & Glatz.

Academy of Medicine of Cleveland

ACADEMY MEETING

The ninety-fifth regular meeting of the Academy was held at the Cleveland Medical Library, Friday, November 15, the President, J. V. Gallagher, in the chair.

The Nominating Committee reported and placed in nomination the following: For President, H. L. Sanford and M. D. Stepp; for Vice-President, C. L. Cummer and C. Lee Graber; for Secretary-Treasurer, A. F. Furrer and J. E. Tuckerman; for Trustees, J. E. Cogan, G. F. Follansbee, P. A. Jacobs and N. C. Yarian. The report of the committee was accepted. There were no further nominations from the floor and the nominations were declared closed.

The regular program was as follows:

1, Station of the Presenting Part in Labor, by A. J. Skeel.

The terms presentation, position and station, were defined, station being the level at which the presenting part is found in the parturient canal. Disregarding the differences in length of the anterior, posterior and lateral walls, the birth canal may be considered, for the purpose of the study of station, as consisting of three dilated or dilatable portions and three narrowed portions. The expanded portions are the uterine cavity, the pelvic cavity and the vulvovaginal canal. The constricted portions are the obstetric inlet and outlet of the pelvis and the vulvovaginal outlet. There are thus six principal stations and any variety of head presentation would be considered as located at a certain station when its greatest participating circumference is at that station. The canal offers resistance to the head at only the three constricting rings, the diameter of which diminishes from above downward. The resistance offered, however, is of less serious nature as we proceed downward, because of the greater dilatability of the obstetric outlet of the pelvis over the inlet and the still greater dilatability of the vulvovaginal outlet. So long as the head remains with its greatest participating circumference above the pelvic inlet, version, pubiotomy or Cæsarian section are elective procedures for operative delivery; forceps are very rarely indicated. With the head at the pelvic outlet, version and Cæsarian section are still sometimes possible, although rarely indicated; forceps delivery is still so serious a procedure that it should be attempted by preference amid hospital surroundings. With the head at the lowermost station forceps is the only method of delivery likely to be necessary. (To be published in full.)

2, The Circulation in the Arm of Man, by A. W. Hewlett, Professor of Medicine in the University of Michigan, Ann Arbor.

We may regard the circulation from: 1, The standpoint of the heart and central vessels, that is, the amount and the pressure of the blood in the heart and large vessels. 2, From the standpoint of the organs, each organ having its own problems. Given the proper central pressure, the blood flow through an organ is controlled by the dilatation or constriction of the vessels of the organ itself. We attempt to gain knowledge of the general circulation from study of the radial pulse, but it must be borne in mind that conditions within the arm itself, considered as an organ, may affect the pulse. The rate of flow through the hand or arm may be studied by the calorimeter method of Stewart or by the plethysmographic method of the speaker, in which the rate of arterial inflow is determined by compressing the vein. Studied by this latter method, the rate of flow in the arm is found decreased by practically all mental or psychic conditions, such as strong emotion, fright, or mental labor; it is known that the internal organs show circulatory changes in the reverse order in these conditions. An impulse toward voluntary motion causes an increased

flow, as does muscular exercise. Not nearly so great an increase occurs when the muscular contractions are the result of nerve stimulation. Massage, likewise, does not produce an equal flow. It would seem, therefore, that the cerebral impulse is chiefly responsible in causing an active vascular dilatation. The flow is increased by local heat and decreased by local cold. Changes in the surrounding general room temperature not great enough to produce subjective discomfort cause alterations in the rate of flow in the arm. In normal individuals under similar conditions the rate of flow has been found to vary within rather wide limits. A number of disease conditions, especially those associated with physical or mental fatigue or exhaustion, may alter the normal vascular reaction. The studies would seem to point to the therapeutic suggestion that muscular exercise and heat are the agents most active in producing an increased blood flow.

G. N. Stewart, in discussion, said that he believed that when arranged for standard conditions both the calorimetric and plethymographic methods show uniform changes. The differences in the normal variations in the flow, as determined by the two methods, would seem to be due to the fact that the plethysmographic method measures the velocity of a large amount of blood for a short period, whereas the calorimetric method measures smaller amounts over a longer time and averages sudden, temporary variations. The plethysmographic method seems to detect more rapid changes with greater ease than the calorimetric method. In both methods constancy of results seems to depend largely upon uniformity of external conditions.

A. D. Hewlett, in closing, admitted that in his own work he had failed to get any very great constancy in results on successive examinations, perhaps because the method measures the flow over very short periods of time.

OPHTHALMOLOGICAL AND OTO-LARYNGOLOGICAL SECTION

The sixty-second regular meeting of this Section was held at the Cleveland Medical Library, Friday, November 22, the Chairman, W. E. Bruner, in the chair.

The following officers were elected: Chairman, C. C. Stuart; Secretary, Leo Wolfenstein (reelected).

W. H. Tuckerman presented a case of rupture of the ear drum due to the explosion of a shot gun.

W. E. Bruner exhibited X-ray plates illustrating the localization of a foreign body within the eye. Two images of the body are seen upon the plate when the second is taken after the eye is moved, the head being held in the same position.

The regular program was as follows.

1, Sloughing of the Nasal Septum after Submucous Resection, by David Prendergast.

Failure of healing after submucous resection is usually limited to perforation. Much more rare is sloughing of the mucosa. This may be due to local causes, such as abscess of the septum, infected hematoma or decomposition of bone particles. Or it may be due to general causes, syphilis and tuberculosis, the latter being very rare. In the case reported resection was followed by sloughing of about two-thirds of the mucosa. Syphilis being suspected, a Wassermann test was done and was found to be positive. This was the first intimation that the patient herself had had, according to her own history, that she had syphilis. The sloughing was brought under control after a month's vigorous antileptic treatment. (To be published in full.)

J. E. Ingersoll, in discussion, said that the condition reported is a rare one, but he was surprised that it was not encountered more frequently. He thought that perhaps some of the cases of deformity after resection might be due to lues.

W. H. Tuckerman recalled a case of injury to the face resulting in fracture of the superior maxilla. Wiring of the fracture was followed

by necrosis of bone, undoubtedly syphilitic in origin, the localization of the luetic process being brought about by the local trauma, a condition apparently analogous to that reported.

M. Metzenbaum mentioned the case of a boy of ten years, in whom the pressure of an hypertrophied turbinate upon a deflected septum caused loss of the mucosa and finally perforation of the septum.

2, Vernal Conjunctivitis, by R. B. Metz.

Spring catarrh is a chronic inflammation of the conjunctiva, usually bilateral. Most frequently the bulbar and tarsal conjunctivae are involved. The thickened membrane has a gelatinous appearance and is somewhat congested. It may show whitish or yellowish spots; these, which are epithelial vesicles, may appear suddenly, last about a week and then disappear, to be followed by others. In the conjunctivae of the lids the papillae are hypertrophied and may become pale. The secretion is usually scanty and is characterized by the presence of many eosinophiles, which may be so numerous as to constitute 50 per cent of the total leukocytes present. Corneal involvement may occur, and this may gradually lead to marked impairment of vision. The symptoms are redness, itching and lachrymation. The warmer the weather the more intense are the symptoms. In winter there is relief from the subjective symptoms but the conjunctival involvement persists, usually with less marked injection. Anatomically, the epithelium is chiefly involved. The papillae are hypertrophied and the stroma may show some subacute inflammation, which may be characterized by the presence of eosinophiles and plasma cells. When the cornea is involved the epithelium may be thickened to three to five times the normal. There have been described vascular changes, involving chiefly the intima, similar to changes which have been noted as the result of the X-ray or radium irradiation. The ultraviolet rays of the sun have been held responsible for the condition, but the etiology must be considered still in doubt. In the treatment there have been recommended colored glasses which will cut out the ultraviolet rays or the instillation of drugs, which prevent absorption of the rays. Astringents are disappointing. Exposure to radium rays has been followed by excellent results. In general, the treatment is unsatisfactory and must be largely symptomatic. (To be published in full.)

J. E. Cogan, in discussion, said that the diagnosis of vernal conjunctivitis is usually easy when the palpebral conjunctiva is involved, but more difficult when the pathological change is limited to the bulbar membrane. It is interesting that the pathological change is present throughout the year, yet the subjective symptoms are marked only in the spring and summer.

C. C. Stuart said that he had had a case which he has followed for several years. The results of various forms of treatment have been disappointing. Following X-ray treatment there has been improvement, but not cure.

W. E. Bruner agreed that the usual forms of treatment are disappointing. With increasing age the condition may gradually disappear. In one case good results followed exposure to the X-ray; in another case the same treatment has been followed by some increase in comfort, but with no very marked effect upon the granulations.

R. B. Metz, in closing, said that in the radium treatment the radium is used about once a month for eight applications. In the cases seen here in the dispensary palliative measures only were tried. Of these, dilute acetic acid instilled in the eye seems to be most effective in relieving the subjective symptoms.

3, Report of a Case of Sudden Monocular Blindness with Recovery, by W. C. Tuckerman.

Last May, the patient, a woman of middle age, noticed a sudden loss of motor strength of the one arm; the description given by the patient was that of a wrist drop. The condition was considered a neurotic one by her physician. Last August she complained of double vision of the left eye, which disappeared with the use of department store glasses. About the

middle of September she noticed loss of vision of the right eye. When seen at this time the cornea was sensitive to touch. A provisional diagnosis of hysterical blindness was made. Some days later the pupil began to react erratically to light and by September 24 light perception had returned. At this time the Wasserman reaction was found to be positive, and vigorous antileptic treatment was started. Vision has gradually improved, but the improvement had already begun before specific treatment was started. (To be published in full.)

C. C. Stuart, in discussion, asked as to what the two fields showed and as to whether the tension of the eye was increased. From an inspection of the two eyes he thought that in the right eye the temporal half of the nerve head was paler than the nasal half and that the vessels had a slightly curved course.

W. E. Bruner believed that the eye ground shows changes which much be considered organic. But if this same condition was present before the blindness the appearance of the fundus at the present time may have little bearing upon the diagnosis.

R. B. Metz thought that the right eye appeared abnormal and that one of the vessels appeared thickened.

W. C. Tuckerman, in closing, said that the eye showed no increase in tension to the touch. The fields had not been taken. In regard to the appearance of the fundus, this has shown no change since the sight has returned and appears now the same as at the first examination.

4, The Importance of Cyclophoria as a Source of Error when a Prism is Used in Measuring Latent Deviations, by J. E. Cogan.

With cyclophoria, the rotation of the eye about its axis, most divergent results can be obtained when prisms are used in measuring muscular deviation. The prisms may indicate hyperphoria or hypophoria, when only cyclophoria is present. To prevent these divergent results in deviating eyes, when cyclophoria is present, macular fixation must be compared with macular fixation.

Edward Lauder, in discussion, asked whether in the method described the position of the head makes any difference or whether the examination is made only in the primary position. He had found that the results are better when following the indications of the tropometer than those of prisms.

W. C. Tuckerman feared that in many instruments for eye testing the attempt is made to make them too precise, the precision being greater than is warranted when testing the human being.

J. E. Cogan, in closing, agreed that little reliance was to be placed in duction tests with prisms. Any misunderstanding of his position which may have arisen was due to the fact that the test described is for the position of rest, whereas the tropometer tests deviations for positions of motion.

MEDICO-LEGAL SECTION

The regular meeting of this Section was held at the Cleveland Medical Library, Friday, November 29, 1912, the Chairman, J. S. Tierney, in the chair.

The program consisted of an address, The Traumatic Neurosis, by Pearce Bailey, M. D., of New York City.

With the development of anatomical and physiological knowledge of the nervous system our ideas in regard to the traumatic neuroses have undergone considerable change, passing through the initial organic period of Erichsen and the functional period of Charcot to the analytical period of today. At first the mental disturbances following accidents were supposed to be due to real and gross injuries. When this position was found to be untenable, microscopic but irreparable lesions of the central nervous system were postulated. And finally, by psychological analysis, it has been shown that in the true traumatic neuroses suggestion, either from within or without, is largely responsible for the altered psychic conditions following accidents. According to the modern conception the traumatic

neuroses, as a distinct limitable group of diseases, give way to the hypothesis that every neurosis is a personal matter with the individual who entertains it and that the way it manifests itself depends upon the patient's personality. The traumatic neuroses, as a group, are replaced by a disorder of personality, by a faulty psychological adjustment. The symptomatic manifestations, determined by conscious and unconscious factors, are influenced by suggestion. Factors which must be borne in mind in the study of any suspected traumatic neurosis are the exciting cause, the accident itself; the state of the mind at the time of and after the accident; and the symptomatic trends, in which suggestion plays so large a part. The individual symptoms are important only in so far as they give a clue to the mental motives; they are the clinical expression of fear or desire, and their form is determined by the mental make-up of the patient and by environmental conditions. The demonstration and detection of the true mental motives in a traumatic neurosis are difficult and become possible only through the method of association and the method of analysis of dreams. In the vast majority of cases patients with traumatic neuroses recover sufficiently to resume their personal and social obligations and to seem to outsiders to be in good health.

W. B. Laffer, in opening the discussion, said the important fact is that there is no such actual disease as traumatic neurosis. Most of the patients are individuals, often having many of the stigmata of neurotics, who react more easily to suggestion than normal individuals. Many are subject to autosuggestion. Often the attitude of the physician and lawyer is such as to intensify suggestions already present. A large percentage of the cases are simulators. The outlook in the traumatic neuroses is brighter than was believed ten years ago.

R. B. Newcomb believed that many case honestly believe themselves to be hurt when they are not much hurt. The patient should be gotten early and his mind relieved of worry as to his family's outlook for a living. The higher the individual's mentality the less the tendency to acquire a traumatic neurosis. Foreigners make up the large percentage of the cases in the speaker's experience.

C. F. Hoover cited an instance of an individual who seemed to present many neurasthenic tendencies as a result of psychic traumata; at autopsy a hemorrhagic encephalitis was found. In another case, a young woman, as a result of psychic trauma due to the fickleness of her fiancé, became comatose; the spinal fluid contained blood and autopsy showed a hemorrhagic encephalitis. He raised the question as to the relationship between psychic traumata and organic disease of the central nervous system.

R. H. Dunlap did not agree with Mr. R. B. Newcomb in the idea that simulation does not exist. He cited an individual who, just before being examined by a corps of physicians, had drunk a quart of vinegar. He appeared ill and upon the medical advice the case was settled at once, after which he immediately got well. In another instance a man suffered from nervousness as the result of a narrow escape at a railway accident and even four years later he could not take a train without the greatest of misgivings. He considered this man entitled to compensation.

H. H. Drysdale agreed with Doctor Bailey that practically all of these cases are psychological problems. Fear and fright, as is well known, are fundamental emotions, and their action under certain conditions of mind may be so violent as to seriously disrupt the psychic functions and encourage the development of morbid ideas of invalidism and ill health. He was not one of those who brand every case of "traumatic nervousness," as malingering and deceit, nor did he take for granted that every subjective manifestation is as intense or as severe as the subject is very apt to paint it; but there is an honest middle road which, if carefully followed, will lead to justice for the claimant as well as for the corporation. He had had the opportunity of observing several cases of the so-called traumatic neuroses after settlements had been made. He had found that those in whom the "litigation syndrome" was strong and pronounced and

especially those who expected the corporation to lift the mortgage off their homes, or purchase for them a fully equipped modern chicken farm, recovered with remarkable speed after adjustment. On the other hand there are honest sufferers, and not a few of these ever regain their former nerve tone and vigor. He had at present under observation a man who sustained a severe shaking-up with considerable physical bruising in a railway wreck, but who has never for a moment entertained a single notion of seeking compensation for his injuries; still this patient as a direct consequence of his traumatic insult is and has been for almost three years a most troublesome and rebellious neurasthenic. Another case, a woman aged thirty-four, after several months of constant worry, nerve strain, etc., unfortunately fell on the floor and from that moment she has been a chronic invalid. Her nervous condition, at the time of the mishap was a fruitful soil for the development of a neurosis. These two instances merely show that you can have "traumatic nervousness" without the element of reward or compensation.

C. H. Clark agreed with Doctor Bailey that suggestion by the family, the doctor and the lawyer enters largely into these cases. He looked upon the traumatic neurosis as not a simple affair to clear up, as he had seen some cases last long after the legal settlement. He asked whether the New York statutes permitted the bringing of suit for mere psychic trauma without physical injury.

Pearce Bailey, in closing, said that he believed that the cases always will get well if the symptoms arise from shock at the time of the accident and are not due to previous abnormal states, even though the cases may drag on for ten years. He had seen no cases of encephalitis produced by psychic shock, such as Doctor Hoover suggested. In order that there may be a cause for legal action in New York state there must be physical injury.

CLINICAL AND PATHOLOGICAL SECTION

The eighty-ninth regular meeting of this Section was held at the Cleveland Medical Library, Friday, December 6, 1912, the Chairman, H. L. Sanford in the chair.

The Nominating Committee presented the following nominations: for Chairman, W. H. Merriam and F. J. Geib; for Secretary, C. L. Cummer and E. O. Houck, both of whom withdrew. W. E. LeFerve and J. D. Osmond were placed in nomination for Secretary from the floor. It was moved and carried that the candidate for Chairman receiving the lesser number of votes should be declared elected Vice-Chairman. The election resulted as follows: Chairman, W. H. Merriam; Vice-Chairman, F. J. Geib; Secretary, J. D. Osmond.

M. J. Lichty presented pathological specimens as follows: 1, A gastric ulcer operated for uncontrollable hemorrhage; the specimen showed a clean-cut ulcer with somewhat undermined edges and with a heavy peritoneal exudate. 2, An appendix from a boy aged 5 years; the chief symptoms had been indigestion and constipation. 3, A cystic appendix, which had given rise to chronic symptoms of gastric tenderness and indigestion; the appendix was constricted at about its middle by a chronic inflammatory band and one portion was transformed into a cyst 3 cm in diameter.

J. J. Thomas presented a specimen of Breus mole, which showed the characteristic lobulated hematomata and the fetus still attached, the latter in about the second month of development.

M. Metzenbaum presented specimens of enlarged middle turbinates and grape-like clusters of polypi of the middle turbinate, which had been associated with persistent sneezing; the speaker's instrument for operation upon enlarged turbinates was shown.

W. H. Humiston reported a case which illustrated the migration of the ovum from the ovary of one side to the tube of the other. The patient, aged 32 years, had been married at twenty; a child was born during the first year, but there had been no subsequent pregnancies. At

operation a cystic ovary was removed, the tube on this side being patent. On the opposite side the tube had been occluded, due to chronic inflammation; it was resected, the ovary being left. Some months after the operation the patient became pregnant.

The regular program was as follows:

1, Uterine Mole, with Report of Cases, by W. H. Weir.

Death of the fetus or hemorrhage usually leads to abortion, but in some cases the dead ovum is retained, producing the condition known as mole. The mole, upon removal, usually shows evidences of hemorrhage and the fetus is generally smaller than the size of the ovum or the duration of pregnancy would suggest. Breus described as a particular type of mole the hematomaous mole, characterized by multiple, lobulated, often sessile, subchorionic hemorrhages. In mole there are the usual early symptoms of pregnancy, with a later cessation of these and failure of the uterus to increase in size as it should normally. There may be symptoms of impending abortion, without expulsion of the fetus. The latter may be retained for months or even years. Abortion at any later time may lead to expulsion of the mole. The treatment is evacuation of the uterus, preferably with the finger. Five cases were reported; one was unusual in that the history would seem to indicate that the mole had been present for twenty-one years. (To be published in full.)

J. J. Thomas, in discussion, did not think that the condition is very frequently encountered. In addition to the Breus mole, the specimen of which had been presented, he recalled one case which had been reported in the discussion at one of the local meetings some years ago.

W. H. Humiston did not believe that the condition was very frequent. In the case with the history of long duration, he asked whether the condition might not have been a polypus.

W. H. Weir, in closing, said that the possibility of polyp had been considered in the last case reported, but the attachment was more like that of a placenta. Furthermore, microscopic examination shows no fibromyomatous tissue; the better preserved tissue present is decidual tissue. After removal the uterus contracted, and the behavior of the case was that of mole rather than of polyp.

2, The Value of Massage in the Treatment of Various Conditions in Children, by John Phillips.

Massage as a therapeutic measure in the treatment of certain conditions in children has been neglected. For the work there is necessary experience in massage, as well as care and tact in the handling of children. In the malnutrition which often follows recovery from acute illnesses, especially in children in hospitals, massage has yielded beneficial results, possibly because of the increased circulation which it produces. In the malnutrition associated with rickets and in the anemia of children massage is helpful. In infantile paralysis the value of massage has long been recognized; it may be more important in the restoration of muscular function than electricity. In beginning curvature of the spine, without bony deformity, exercises and massage are of benefit. In the treatment of constipation in children massage is as helpful as in adults. In all these various conditions massage forms a valuable adjunct to treatment.

J. J. Thomas, in discussion, agreed that massage may be very helpful in various conditions in children. He had seen it used with benefit in rickets, and it has been found helpful in flat-foot in young boys.

F. W. Hitchings reported the case of an adult who had used vibratory massage for the reduction of weight; the result was a gain of five pounds in three weeks.

A. P. Scully had found massage helpful in a case of infantile convulsions, believed to be of intestinal origin.

John Phillips, in closing, said that in addition to the various conditions mentioned massage had been found of benefit in the extreme nervousness of children.

3, Difficulties in the Diagnosis of Gallstones, by F. E. Bunts.

Typical cases of gallstones are easy of diagnosis, but many cases are

so atypical that differential diagnosis from appendicitis, duodenal or gastric ulcer, nephrolithiasis and even ruptured ectopic pregnancy is difficult. Brief reports of atypical cases of gallstones were given to illustrate the difficulties in diagnosis; in one case, in which a diagnosis of ruptured gall-bladder had been made, a ruptured tubal pregnancy was found at operation. As aids in the atypical cases the following points were emphasized: A clear picture of gallstone attacks must be kept in mind. A diagnosis of acute indigestion should not be accepted unless the possibility of gall-bladder disease has been considered and eliminated. The X-ray should be resorted to when there is reasonable doubt as to the existence of renal or ureteral calculi. When the question of appendicitis is raised the history of each previous attack must be carefully considered. In carcinoma of the liver the real nature of the condition may be obscured by an associated catarrhal jaundice, which may clear up under treatment, and later give way to the permanent jaundice of malignant disease. (To be published in full.)

M. J. Lichty, in discussion, said that great advances have undoubtedly been made during the past ten or twelve years in the diagnosis of gallstones. His own experience as an internist had been largely with chronic cases and in these indigestion is the outstanding symptom. Indigestion, due to actual gastric lesions, is very rare, if one excludes carcinoma, ulcer and the chronic gastritis of alcoholics. The diagnosis of gallstones must be made, if it is to be made early enough to be of much value, by the exclusion of all other possibilities.

F. C. Herrick believed that the most important factor in the causation of active trouble in the gall-bladder is infection, the occurrence of which is made easier when stones are present. In this connection one must consider the possibility of the entrance of bacteria from the intestine into the liver and their excretion by the bile.

John Phillips asked in regard to the frequency of left sided pain in gallstones. He had seen several cases in which the pain was chiefly on the left side, in the mammary line, and simulated angina pectoris.

C. E. Briggs said that many people with gallstones do not have symptoms. Perhaps infection is the most important factor in producing symptoms. Small stones are often hard to detect unless the gall-bladder is opened and opening of the bladder would seem warranted when an exploratory incision has been made for suspected gallstones and the stones cannot be felt through the wall. Persistent jaundice most often means malignant disease rather than gallstones.

W. E. Lower felt that age alone must not be too important a factor in excluding gallstones. Although the condition is most frequently encountered in persons of forty and over, he had recently seen gallstone attacks in two young adults, one aged twenty-two and the other twenty-three. He recalled one case characterized by left sided pain simulating angina pectoris.

F. E. Bunts, in closing, said that he had wished chiefly to call attention to the ease with which gallstones may be overlooked when the symptoms are indefinite or atypical. Infection is a very important factor in gall-bladder disease, even when stones are not present. With very small stones the pain may be due only to the passage of the stones; infection need play no part in the symptoms. Left sided pain is one of the atypical symptoms which must be borne in mind when there is a question of gallstones.

EXPERIMENTAL MEDICINE SECTION

The sixty-fourth regular meeting of this Section was held at the Cleveland Medical Library, Friday, December 13, the Chairman, F. C. Waite, in the chair.

The Nominating Committee placed the following in nomination: for chairman, O. T. Schultz; for vice chairman, W. C. Stoner; for secretary, H. N. Cole. Upon motion the secretary was instructed to cast the ballot for those named.

The program was as follows:

1, An Unusual Type of Nuclear Division in Tumor Cells, by Oscar T. Schultz.

Tumor cells take on many primitive mechanisms not ordinarily employed by normal metazoan cells. Two unusual forms of division in tumor cells were described. In a sarcoma of the esophagus, nuclear division, apparently of the direct type, was associated with division of the karyosome. The process was interpreted as a very primitive mitosis, such as occurs in certain protozoan nuclei, and was considered evidence of the return of the division center to an intranuclear situation. Other nuclei showed changes considered evidence that the intranuclear center could again become extranuclear. Division of the karyosome and polar localization were followed by spireme formation and halving of the chromatin.

W. T. Howard, in discussion, agreed that the evidence offered by tumor cells seemed to point to an intranuclear location of the division center. In a recent tumor, divisional stages of the karyosome were seen in fresh, teased preparations, excluding the possibility of artefact.

F. C. Waite asked in regard to the evidence offered upon the points brought out by the growth of tumor cells *in vitro*.

O. T. Schultz, in closing, said that although there had been numerous reports of the growth of tumor cells outside the body, none of them so far had gone very deeply into cytological problems, and questions relating to division and other finer cellular phenomena had apparently been neglected.

2, The Ancestry of the Thyroid, by David Marine.

All the prevertebrate chordates are supplied with an endostyle organ, a groove in the floor of the pharynx. In this, in all species, five distinct types of epithelium are to be distinguished. The lamprey eel, in its larval condition, has a similar organ, which has, however, become transformed into a closed tube opening into the pharynx by a wide duct. After metamorphosis the endostyle has disappeared and scattered thyroid follicles have made their appearance. Study of the changes occurring during metamorphosis showed that the thyroid is developed from the endostyle, and more particularly from a single one of the five original types of epithelium. By this mode of origin there are formed scattered, individual thyroid follicles, a condition present also in fish. The work was confirmatory of the more recent findings in man and the higher mammals, that the thyroid arises from a single medium *anlage*, rather than from a median and two lateral foci.

T. W. Todd, in discussion, spoke of the important additions which the work outlined made to our knowledge of the comparative anatomy of the thyroid.

Third Annual Session of the Clinical Congress of Surgeons of North America

Reported by SAMUEL W. KELLEY, M. D., Cleveland

A brief sketch of this meeting may be timely. The third annual session of this vigorous organization was held in New York City, November 11 to 16, with headquarters at the Waldorf-Astoria.

When I compare this session with those which have preceded it, it appears equal to the first and second in its spirit of enthusiasm; in point of attendance it was the largest yet; and as to completeness of arrangements and precision in carrying out the immense program, it was unprecedented. The management and officers certainly deserve the encomiums of all members, and the profession of New York did its part well.

The attendance was so large, about 2800 having registered, that it may be decided advisable to limit the membership, and a committee was appointed to consider that problem.

The official directory listed ninety-two different hospitals, sanatoria and laboratories at which clinics and demonstrations were held. Every day from Monday to Saturday inclusive was filled with operations and demonstrations at certain prescribed hours in the various institutions, presenting great variety in all the departments of general and special surgery. Nothing very startling or revolutionary was shown but recent advances in procedure or in technique were in evidence all along the line. Among so many subjects it is difficult to choose a small number for mention, but I was especially interested in Hibbs' osteoplasty for the cure of Potts disease, and Albee's transplantation of a portion of the tibia into clefts in the spinous processes of the kyphos, and a sound spine immediately above and below, for the same purpose. Of the two procedures Hibbs' appeals to one's judgment as the more reasonable. Transfusion by means of Brewer's tubes also attracted considerable attention as the simplest method yet devised.

At the Rockefeller Institute, Carrel's demonstrations of blood-vessel surgery of course drew interested spectators every day; and on Saturday, at the New York City College, with appropriate ceremonies President Taft presented Doctor Carrel the recently awarded Nobel prize.

A demonstration by Doctor Abbott, of Portland, Maine, of his method of treatment for lateral curvature of the spine was the first use made of the magnificent new building of the Hospital for the Ruptured and Crippled, and drew a large number of orthopedists, who also inspected the building. Abbott's teaching will doubtless lead to renewed interest in scoliosis, and to more cures; but doubtless his method as at first promulgated will be moderated in its haste for results.

The distinguished foreign guests, Otfried Foerster, of Breslau, with his lecture on "Excision of Spinal Nerve Roots," and W. Arbuthnot Lane, of London, on "Chronic Intestinal Stasis," naturally attracted a great deal of attention. I remember very well that during my studies at the Great Ormond Street Hospital, in 1894, when Mr. Lane was one of the surgeons to the out-patients, he was extremely radical and outspoken concerning the influence of feeding and digestion, not only on rachitis but on hernia, hydrocele, joint diseases and almost anything that might ail the child. His discourse then was as full of curious "kinks" as his intestinal cases now are. It is not surprising that he arrived at short-circuiting or even excising the colon.

The Congress passed several important resolutions. One was that offered by Doctor Kanavel, of Chicago, urging that some system of standardization of hospital equipment and hospital work be developed. The following committee was appointed to carry out the work: A. Codman of Boston, W. J. Mayo of Rochester, Minnesota, Allen B. Kanavel of Chicago, John C. Clark of Philadelphia, and W. W. Chipman of Montreal.

Resolutions to standardize surgical education was presented by Franklin H. Martin, and seconded by John B. Murphy. These resolutions if made effective through legislation will require that every physician in the United States and Canada shall have been recognized and registered as a competent surgeon before he is allowed to perform surgical operations. The resolutions propose that colleges and other appropriate authorities shall be vested with the power to award supplementary degrees to physicians qualified for surgical work.

In speaking to the motion to adopt Doctor Martin said:

"I believe that this largest organization of surgeons on the American continent should assume the responsibility and the authority for standardizing surgery. This can begin at once by this body authorizing the appointment of a thoroughly representative committee, which committee shall have the power to act alone or in conjunction with other committees invited to join them, along the following lines:

"It should formulate a minimum standard of requirements which should be possessed by any authorized graduate in medicine who is

allowed to perform independently operations in general surgery or any of its specialties.

"The committee should consider the desirability of listing the names of those men who desire to practice surgery and who come under the authorized requirements.

"The committee should seek a means of legalizing under national, colonial, state or provincial law a distinct degree supplementing the medical degree, which shall be conferred upon physicians possessing the requirements recognized by this law as necessary to be possessed by operating surgeons.

"It should seek cooperation with the medical schools of the continent which have the right to confer the degree of M. D. under the recognized standards and should authorize those colleges to confer the supplementary degree of surgeon on such of their graduates as have, in addition to their medical course, fulfilled the necessary apprenticeship in surgical hospitals, operative laboratories and actual operatory surgery.

"The committee should authorize and popularize the use of this title by men upon whom it is conferred, and its use should especially be urged in all directories of physicians in order that the laity as well as the medical man can distinguish between the men who have and the men who have not been authorized to practice surgery.

"I believe that the time has come for a concerted action on the part of the great body of thinking surgeons on this continent to insist that the surgeon of the future shall not only be thoroughly educated in the science of medicine but that he shall have a thorough training in the technique of surgery under the direction of a practical surgeon before he is legally or morally allowed to operate upon the public.

"This is not, it seems to me, open to argument. This would protect unsuspecting patients who have no way of discriminating between trained surgeons and the tyro and it would protect and put a premium where it belongs, on the conscientiously trained surgeon."

The resolutions were adopted. The ten members chosen to serve on the committee are: Edward Martin of Philadelphia, Rudolph Matas of New Orleans, W. W. Chipman of Montreal, John M. T. Finney of Baltimore, Franklin H. Martin of Chicago, Albert J. Ochsner of Chicago, Emmett Rexford of San Francisco, John B. Murphy of Chicago, F. J. Cotton of Boston, and George Emerson Brewer, ex officio, of New York.

These resolutions occasioned considerable private discussion after the meeting. Some objected to the plan of having any committee to pass upon the qualification of individuals or confer titles, but were willing to leave that to the medical colleges which, however, should standardize their requirements for the surgeon's degree.

The officers of the congress elected to serve for the next year are: President, George Emerson Brewer of New York; vice-president, W. W. Chipman of Montreal; general secretary, Franklin H. Martin of Chicago; general treasurer, Allen B. Kanavel of Chicago; general manager, A. D. Ballou; chairman of the committee of arrangements for the next meeting, E. Wyllis Andrews of Chicago.

Book Reviews

Principles of Hygiene: For Students, Physicians, and Health-Officers. By D. H. Bergey, M. D., First Assistant, Laboratory of Hygiene and Assistant Professor of Bacteriology, University of Pennsylvania. Fourth edition thoroughly revised. Octavo of 529 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.00 net.

The appearance of the fourth edition needs little comment. It is one of the best textbooks on hygiene published in the country, and contains much valuable material. In common with practically all the text books on this subject there are some things for unfavorable comment. The arrangement is not sequential, chapters on soil following far after those

on water and sewage with which they are intimately bound up, and epidemiology is treated after military, naval and school hygiene, of which it actually forms so great a part. As noted this is common to the American texts and is to be regretted. Even in the fourth edition there is no reference to the advent of the vacuum cleaner, considered by some to be the greatest single advance of the last ten years. In spite of these things the book is of value to the student in that it does not attempt to be compendious and is pleasantly readable. The text and illustrations are good, though the latter might be more numerous.

R. G. P.

A Text-Book upon the Pathogenic Bacteria and Protozoa. For Students of Medicine and Physicians. By Joseph McFarland, M. D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 878 pages, 293 illustrations, a number of them in colors. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.50 net.

The addition of the word Protoboa to the former title is the essential change in the edition. The rest has been brought up to date by the insertion of the latest technic in diagnosis and the newer information about immunity and prevention. The book holds a place of its own on account of the careful bibliography, and the compendious character of the work, common to all the books by the same author. It is perhaps rather too full for the average student, but as a book of reference is most valuable both to the teacher and to the somewhat more advanced student. The illustrations are mostly photographs and really illustrate, and are specially valuable in the descriptions of technic. The classification according to the diseases rather than according to the morphology is satisfactory, and the historical data given with each organism make it easier to follow the development of the knowledge of infections.

R. G. P.

A Collection of Papers (Published Previous to 1909). By William J. Mayo, M. D., and Charles H. Mayo, M. D. Two octavo volumes, averaging 550 pages each, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Per set, cloth, \$10.00 net.

Since 1909 the Staff of St. Mary's Hospital (Mayo Clinic) has had reprinted yearly the papers written for various medical societies and medical journals, and issued in a separate volume of "Collected Papers." By way of presenting in accessible form the complete writings of the Mayos, from the time of their graduation, the present two volumes were issued. The papers are arranged chronologically under headings in general following those adopted in the "Collected Papers," so that one can follow the historical development both of surgery in general, as well as the personal practice of the Mayos themselves. Space forbids any detailed review. For one interested especially in surgery there will be found much of profit. One cannot help but appreciate the great part played by the Mayos in the development of surgery.

C. H. L.

Collected Papers by the Staff of St. Mary's Hospital (Mayo Clinic) for 1911. Octavo of 603 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$5.50 net.

This volume presents in accessible form the writings of the Mayos and their staff for the year 1911 collected into a well bound, well printed and well illustrated volume. The wealth of subjects discussed is witness to the large amount of work done in this clinic. The general level of excellence is witness to the efficiency of a staff divided along various lines of specialization, all working harmoniously for the good of any patient who enters their care. One cannot but admire the genius for organization exhibited at this clinic. And one cannot refrain from asking why a patient in this city, unless he is so fortunate as to be sufficiently

poor in purse to be admitted to the open wards of a hospital, must needs travel around to six or eight doctors, paying each a separate fee, in order to get, at best, an incoordinated diagnosis and treatment of his condition. Having wandered sufficiently far from the subject of our "book review," we close with a hearty recommendation of this volume to those of our readers interested in surgery.

C. H. L.

Brain and Spinal Cord: A Manual for the Study of the Morphology and Fibre-Tracts of the Central Nervous System. By Dr. Med. Emil Villiger, Privatdozent in Neurology and Neuropathology in the University of Basel. Translated by George A. Piersol, M. D., Sc. D., Professor of Anatomy in the University of Pennsylvania. From the Third German Edition. Cloth, 289 pages, 232 illustrations, \$4.00. J. B. Lippincott Company, Philadelphia and London, 1912.

This work has evidently been favorably received in Europe, as it has now reached its third edition in the German. The work is arranged in three parts. Part I contains a concise account of the morphology of the central nervous system. Part II deals with the connections of the various fiber tracts in the brain and cord together with the structure of the cerebral cortex and cerebral localization. We note that several figures not found in the second German edition and which are now published, are not mentioned in the text nor are they furnished with a legend to counteract this oversight. As an example of this we may cite figures 114 and 115, respectively mesial and lateral views of the cerebral hemisphere after Brodmann. Here various cytoarchitectonic cortical areas are indicated by different methods of shading, but the significance of this shading and the names of the areas thus outlined receive no mention. Part III, which is made up of figures illustrating serial sections through the cerebrum and brain stem, together with explanatory notes, is a most excellent feature and should serve as an accurate and convenient source of reference. The selected bibliography appended by the translator should prove of use to the student.

D. B.

Health in Home and Town. By Bertha Millard Brown, S. B., Author of "Good Health for Girls and Boys." Cloth, 312 pages, illustrated. D. C. Heath & Company, Boston, New York, Chicago, 1912.

This little book follows a previous one by the same author, and is meant to carry on the ideas introduced in the earlier work. It deals with the home and with the city, and shows how the best results are to be obtained. It may be that the general character of the homes and the houses which are drawn is higher than can be obtained on a workman's income, but on the whole the standard is not hopelessly elevated. One should like to see suggestions of wooden air shafts from the first story to the roof with their fire possibilities eliminated from books of this sort, and the omission of the vacuum cleaner as an agency for the safe removal of dust is regrettable. In the picture of "consumption germs" there are no germs visible, probably because the original was in colors, only one of which appeared. These are, however, minor defects, and there is one feature of the book which can scarcely be too much approved. The diagrams showing ventilation, steam and water heating, pollution of water supplies, etc., are very well selected and will do much to remove the dense fog of ignorance which exists in the mind of the average householder and which checks his interest in hygienic improvements. The type is pleasant, the book is of convenient size, and should serve an excellent purpose.

R. G. P.

The Blood of the Fathers: A Play in Four Acts. By G. Frank Lydston. Cloth, 241 pages. The Riverton Press, 626 South Clark Street, Chicago, 1912.

Doctor Lydston has here begun to put forth his well known opinions in dramatic form, appreciating that one may gain a hearing in this way

with people who will not read plain prose. The story deals with the marriage and subsequent life of a doctor interested in hereditary and sociological problems. The wife has a bad strain which leads her to the commission of a crime, in spite of the fact that she is ignorant of her heredity. The play is interesting, but the point brought out does not appear worthy of the effort, and some of the characters, notably the Japanese servant, are overdrawn. Due credit must, however, be given for the intentions, and Doctor Lydston should be encouraged to pursue the method farther, as this first attempt shows that the foundation is good, and that practice is the main thing needed. R. G. P.

Man's Redemption of Man: A Lay Sermon. By William Osler. Cloth, 60 pages, 50 cents. Paul B. Hoeber, 69 East 59th Street, New York, 1912.

Man's redemption of man lies in his increased average duration of life and his decreased liability to infectious disease, a triumph greater than the redemption of his soul through religion or of his worldly goods through beneficent lawmaking. In this address, delivered before the students of Edinburgh University, the progress of preventive medicine is sketched in its broad outlines with Osler's usual charming style and with his always evident, wide knowledge of all literature. O. T. S.

A Practical Medical Dictionary. By Thomas Lathrop Stedman, A. M., M. D., Editor of "Twentieth Century Practice of Medicine;" Editor of the "Medical Record." Second, revised edition. Flexible leather, 1028 pages, illustrated, \$5.00 net. William Wood & Company, New York, 1912.

The addition of a new term on the very first page of the second edition of Stedman's Dictionary has made necessary new plates throughout and has given the occasion for a thorough revision which has added twenty-eight pages. In the appendix a table of symbols is new. Frequent and constant use of the dictionary since the appearance of the first edition has brought out the following points of excellence: First, size, making for ease and convenience in handling. Second, uniformity in the dropping of diphthongs; the use of diphthongs or of the equivalent single letters is a matter for individual choice; but a dictionary which sets out to drop diphthongs ought to do so in every case, and this Stedman's has done. Third, the large number of eponymic terms; in general, we decry the naming of things medical after men, but the habit is a fixed one and a dictionary is necessary not only for defining the large number of such terms which have become firmly established in medical literature, but also for determining the proper spelling of proper names. O. T. S.

Practical Medicine Series. Vol. V, Series 1912: Obstetrics. Edited by Joseph D. DeLee, A. M., M. D., Professor of Obstetrics, Northwestern University Medical School; with the collaboration of Herbert M. Stone, M. D. Cloth, 229 pages, 3 figures, 5 plates, \$1.25. Price of the series of ten volumes, \$10.00. The Year Book Publishers, 180 North Dearborn Street, Chicago.

This little epitome of progress in obstetrics for the current year is again in print. It reviews the important obstetric literature in sufficient detail for practical use of its contents, besides giving the invaluable aid of the ripe judgment of the editor on each subject presented. The careful selection of material, the editorial comment, and the references to the literature from which the subject matter is chosen unite in adding to the usefulness of the work. The size is convenient, and the type clear. It is a valuable aid to any one practicing obstetrics. A. J. S.

A Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York, New (7th) edition, thoroughly revised. Octavo, 930 pages, with 459 engravings and 39 plates. Cloth, \$5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

The seventh edition of this standard authority presents several additional new chapters, notably on the subject of treatment of old dislocations and chapters on the operative treatment of recent fractures. There are also new sections on fractures of the small bones of the hand, besides many new illustrations from photographs and skiagrams.

In view of the decided impetus which has been given to the method of treatment of simple fractures by incision and direct fixation, largely through the example and teachings of Mr. Arbuthnot Lane, it is interesting to note that the author maintains a very conservative position in this regard. He says on page 85. "It seems to me clear that operation should be reserved in fractures of the shaft for those cases in which it is clearly indicated by some marked and otherwise irreducible displacement, and that for the maintenance of reduction thus made, reliance should be upon external support without metallic sutures or pins placed in the bones; at the most a temporary silk or an absorbable suture may be used.

"In articular fractures the conditions are different; the displacement if uncorrected may seriously compromise the usefulness of the joint, and but little if any relief is to be expected from a late operation. If anything is to be done, it must be while the injury is still recent."

In attributing Lane's successful results to his exceptional dexterity and unwavering attention to details of asepsis, the author further says: "I still feel that the advantages claimed" (for open fixation) "are inadequate to offset the discomforts and risks of the operation, and that in most hands even those advantages would not be obtained; that external splints would still be needed for fixation, and that suppuration followed by delay in union or death would frequently occur."

In treatment of fractures about the elbow joint, Doctor Stimson disagrees with other authorities who favor putting up such fractures in acute flexion. The author says on page 269: "Full flexion of the elbow, which of late has been urged in a somewhat exaggerated and uncritical way as to the proper treatment for all fractures at the elbow, undoubtedly holds the fragments, in this form of fracture, more firmly together, apparently by the tension of the triceps thus produced, or, as emphasized by Lusk, by the untorn periosteum on the back of the bone, but it can itself produce an angular displacement (apex backward), and of course it is valueless unless antecedent reduction is made."

In the chapter on fractures of the lower end of the radius, it is rather surprising that the author, in speaking of the causes of this type of fracture, does not mention the "back fire" received in cranking an automobile. During the last few years this has probably produced more fractures of the lower end of the radius than any other one cause.

The chapter on fractures of the carpal bones is most excellent and brings the subject thoroughly up to date.

The book as a whole represents one of our most valuable consulting authorities for facts and statistics of all kinds connected with fractures and dislocations.

H. L. S.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth Edition, Thoroughly Revised. Octavo of 1100 pages, with 1050 original line drawings. Philadelphia and London. W. B. Saunders Company, 1912. Cloth, \$6.50 net; half morocco, \$8.00 net.

This well known standard work has been pretty thoroughly revised for the new edition. The chapters on the blood in relation to surgery,

and the one on cancer, have been brought into accord with modern views. That portion of the work devoted to repair of the pelvic floor should be brought up to date. The author's unqualified advice to curette for acute gonorrheal endometritis and for acute septic endometritis is also open to serious question.

The book is well balanced and retains its valuable characteristic of covering the entire subject both medically and surgically. The instruments required for each procedure are shown by a cut in juxtaposition to the corresponding text. The treatment prescribed in the nonoperative cases is sufficiently detailed for actual care of the patient; if the author recommends an enema he mentions the ingredients, and exact quantity of each; if he suggests douches, he tells the frequency, quantity, temperature, position of patient, etc., not leaving these important details to be filled in by the reader. The book contains many valuable suggestions in medical gynecology; a feature which should render it peculiarly valuable to the general practitioner. Perhaps the best feature of the work is its completeness in subject matter, without excess of detail in operative procedures.

A. J. S.

A Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Textbook specially adapted for Students of Medicine, Pharmacy and Dentistry. By W. Simon, Ph. D., M. D., Professor of Chemistry in the College of Physicians and Surgeons, Baltimore, and in the Baltimore College of Dental Surgery; Emeritus Professor in the Maryland College of Pharmacy; and Daniel Base, Ph. D., Professor of Chemistry in the University of Maryland. New (10th) edition, enlarged and thoroughly revised. Octavo, 774 pages, with 82 engravings and 9 colored plates, illustrating 64 of the most important chemical tests. Cloth, \$3.00 net. Lea & Febiger, Philadelphia and New York, 1912.

This book belongs to that class of textbooks of chemistry which include in one volume all branches of the subject that a medical student could be required to study—inorganic, qualitative, quantitative, organic and physiological chemistry. In all such books some subjects are slighted; in this, the presentation of physiological chemistry is inadequate. For instance, the chemistry of carbohydrates, of purin bodies, and of amino acids in relation to the constitution of proteins, is too briefly considered. We believe that biochemistry is a sufficiently important subject to merit full treatment in a separate volume and that only such full discussion of the subject should be put into the hands of medical students. The colored plates add scenic effect to the book but, with the exception of the spectra plate, they cannot be taken seriously. The authors do not seem to be aware that *dialyzed iron* is a colloidal solution. The important subject of colloidal solutions is practically ignored, a few words on colloidal silver comprising the sum total of the discussion. Undoubtedly this textbook is fairly satisfactory for dental and pharmacy students.

H. D. H.

New Aspects of Diabetes—Pathology and Treatment. By Prof. Dr. Carl vonNoorden, Professor of the First Medical Clinic, Vienna. Lectures delivered at the New York Post-Graduate Medical School. Cloth, 160 pages, 2 figures, \$1.50. E. B. Treat & Company, New York, 1912.

The present volume includes the subject matter of a course of lectures delivered in October of the present year at the New York Post-Graduate Medical School. The impression which one gains on perusal of the work is that no very great amount of care has been taken in its preparation; it strikes one as a rather poor and haphazard compilation of the author's more important previous works and it cannot certainly be considered as a worthy successor of them. There are, however, many parts of the book that have some value, this being especially so in the case of the author's more recent experiences in the treatment of diabetes.

Emphasis is placed on the fact, which is too often neglected in practice, that every case of diabetes must be separately studied as to its

peculiarities, and the diet adjusted so as to conform with them. In other words, there is no stereotyped diet suitable for all diabetics; each case must be the subject of special study and the diet which is prescribed must depend on the outcome of this study.

In the chapter dealing with the part played by the various ductless glands in the control of carbohydrate metabolism, it is stated, among other things, that the thyroid gland has an antagonistic action to that of the pancreas. In view of the very decisive recent work indicating that this is not the case, it is to be deplored that the author should indulge in such dogmatism. On the whole, this chapter is unsatisfactory and highly theoretical and speculative. It certainly does not represent the modern teaching of the physiological pathology of diabetes. J. J. R. M.

Acknowledgements

The Practical Medicine Series. Vol. VII, Series 1912: Pediatrics. Edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School, Attending Physician Michael Reese Hospital; with the collaboration of May Michael, M.D. Orthopedic Surgery. Edited by John Ridlon, A.M., M.D., Professor of Orthopedic Surgery, Rush Medical College; with the collaboration of Charles A. Parker, M.D. Cloth, 240 pages, 3 figures, 8 plates, \$1.25. The Year Book Publishers.

A Text-Book on the Practice of Gynecology. For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Professor of Gynecology in the Medico-Chirurgical College of Philadelphia. Fifth Edition, thoroughly revised. Octavo of 1100 pages, with 1050 original line drawings. Cloth, \$6.50 net; half morocco, \$8.00 net. W. B. Saunders Company, Philadelphia and London.

A Text-Book of Obstetrics: Including Related Gynecologic Operations. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Seventh revised edition. Octavo of 1013 pages, with 985 illustrations, 53 of them in color. Cloth, \$5.00 net; half morocco, \$6.50 net. W. B. Saunders Company, Philadelphia and New York, 1912.

Diseases of the Stomach, Intestines and Pancreas. By Robert Coleman Kemp, M.D., Professor of Gastrointestinal Diseases, New York School of Clinical Medicine. Second edition, revised and enlarged. Octavo of 1021 pages, with 388 illustrations. Cloth, \$6.50 net; half morocco, \$8.00 net. W. B. Saunders Company, Philadelphia and New York, 1912.

Diseases of the Mouth. For Physicians, Dentists, Medical and Dental Students. By Prof. Dr. F. Zinsser, Director of the Department of Dermatology at the City Hospital, Lindenburger. Translated and Edited by John Bethune Stein, M.D., Professor of Physiology at the New York College of Dentistry. Cloth, pp. 268, with 73 illustrations, \$7. New York; Rebman Company, 1912.

Surgery of the Brain and Spinal Cord Based on Personal Experiences. By Prof. Fedor Krause, M.D., Geh. Medizinalrat Dirigierender Arzt am Augusta Hospital zu Berlin. English Adaptation by Dr. Max Thorek, Surgeon-in-Chief American Hospital, Chicago. Volume III, pp. 1201, with 89 illustrations. Cloth, \$7. New York: Rebman Company, 1912.

Surgery and Diseases of the Mouth and Jaws. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By Vilray Papin Blair, A.M., M.D., Professor of Oral Surgery in the Washington University Dental School. Pp. 638, with 384 illustrations. Cloth, \$5. St. Louis: C. V. Mosby Company, 1912.

New Aspects of Diabetes. Pathology and Treatment. By Prof. Dr. Carl von Noorden, Professor of the First Medical Clinic, Vienna. Lec-

tures Delivered at the New York Post-Graduate Medical School, New York. Cloth, pp. 160, \$1.50. New York: E. B. Treat & Co., 1912.

Diseases of Children. A Practical Treatise on Diagnosis and Treatment for the Use of Students and Practitioners of Medicine. By Benjamin Knox Rachford, Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati; Pediatrician to the Cincinnati Hospital, etc. Cloth, 783 pages, 107 figures, 6 plates. D. Appleton & Company, New York and London, 1912.

Public Health Bulletin No. 54. Organization, Powers, and Duties of Health Authorities. An analysis of the Laws and Regulations Relating Thereto in Force in the United States. By J. W. Kerr, Assistant Surgeon General, and A. A. Moll, A. B. Government Printing Office, Washington.

Second Annual Report of the State Charities Commission of Illinois. Springfield, Illinois, December, 1911.

Monthly Bulletin of the Department of Health of the City of New York. October, 1912.

The Waters of the Hot Springs of Arkansas in Relation to the Alleviation and Cure of Diseases. A Report to the Secretary of the Interior on H. R. 24737, "A Bill to authorize the investigation of the physiological and therapeutical effects of the waters of the hot springs of Arkansas and to report upon the application of these waters to the alleviation and cure of diseases." Government Printing Office, Washington.

Senate Document No. 890. Sugar at a Glance. Charts and Data prepared by Truman G. Palmer concerning national economy and the high cost of living as effected by the increased yield of other crops when grown in rotation with sugar beets. Government Printing Office, Washington.

Annual Calendar of the Faculty of Medicine and the Department of Dentistry of McGill University. Eighty-first session, 1912-1913.

A Practical Medical Dictionary. By Thomas Lathrop Stedman, A. M., M. D., Editor of "Twentieth Century Practice of Medicine;" Editor of the "Medical Record." Second, revised edition, illustrated. Limp leather; \$4.50 net, plain; \$5.00 net, indexed. William Wood & Company, New York, 1912.

The Practical Medicine Series. Vol. VIII, Series 1912: Materia Medica and Therapeutics. Preventive Medicine and Climatology. Edited by George F. Butler, Ph. G., A. M., M. D.; Henry B. Favill, A. B., M. D.; Norman Bridge, A. M., M. D. Cloth, 350 pages. The Year Book Publishers, 180 North Dearborn Street, Chicago.

Physical Diagnosis. By Richard C. Cabot, M. D., Assistant Professor of Medicine in Harvard University. Fifth edition, revised and enlarged. Cloth, 519 pages, 5 plates, 268 figures in the text, \$3.00 net. William Wood & Company, New York, 1912.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Vol. XIV, No. 4. Whole No. 56. Vol. IV, December, 1912: Diseases of the Digestive Tract and Allied Organs, the Liver, Pancreas and Peritoneum.—Diseases of the Kidneys.—Genitourinary Diseases.—Surgery of the Extremities, Shock, Anesthesia, Infections, Fractures and Dislocations, and Tumors.—Practical Therapeutic Referendum. Paper, 381 pages, 62 figures. Price, \$6.00 per annum. Lea & Febiger, Philadelphia and New York.

Diseases of Children. A Practical Treatise on Diagnosis and Treatment, for the Use of Students and Practitioners of Medicine. By Benjamin Knox Rachford, Professor of Diseases of Children, Ohio-Miami Medical College, Department of Medicine of the University of Cincinnati. Cloth, price, \$5.00. 783 pages, with 107 illustrations. New York, D. Appleton & Co., 1912.

Index-Catalogue of Medical and Veterinary Zoology. Subjects: Cestoda and Cestodaria. By Charles Wardell Stiles and Albert Hassall. Paper, 464 pages. Washington. Government Printing Office, Hygienic Laboratory Bulletin 85, 1912.

Reprint from Public Health Reports, No. 94. Notes on the Bionomics of Rats and Ground Squirrels. By George W. McCoy, Passed Assistant Surgeon, U. S. P. H. S. Government Printing Office, Washington, 1912.

Reprint from Public Health Reports, No. 95. The United States Public Health Service. Government Printing Office, Washington, 1912.

Reprint from Public Health Reports, No. 96. Rocky Mountain Spotted Fever. By Wm. Colby Rucker, Assistant Surgeon General, U. S. P. H. S. Government Printing Office, Washington, 1912.

Reprint from Public Health Reports, No. 98. A Squirrel Destructor. An Efficient and Economical Method of Destroying Ground Squirrels. By John D. Long, Passed Assistant Surgeon, U. S. P. H. S. Government Printing Office, Washington, 1912.

Reprint from Public Health Reports, No. 99. Transmission of Poliomyelitis by Means of the Stable Fly (*Stomoxys Calcitrans*). By John F. Anderson, Director Hygienic Laboratory, U. S. P. H. S., and Wade H. Frost, Passed Assistant Surgeon, U. S. P. H. S. Government Printing Office, Washington, 1912.

Reprint from Public Health Reports, No. 100. Whooping Cough. Its Nature and Prevention. A Popular Discussion of a Widespread and Dangerous Disease for which Familiarity has Bred Contempt. By W. C. Rucker, Assistant Surgeon General, U. S. P. H. S. Government Printing Office, Washington, 1912.

Public Health Bulletin No. 57. Common Drinking Cups and Roller Towels. An Analysis of the Laws and Regulations Relating Thereto in Force in the United States. By J. W. Kerr, Assistant Surgeon General and A. A. Moll, A. B. Government Printing Office, Washington, 1912.

Eclectic Medical College Bulletin. Vol. III, No. 3, December, 1912.

Reprints:

Radium in Gynaecological Conditions. By W. H. B. Aikins and F. C. Harrison, Toronto (The Canadian Practitioner and Review, October, 1912).

Oral Sepsis from the Physician's Standpoint. By Judson Daland, M. D. Philadelphia (Dental Cosmos, November, 1912).

The Diagnosis of Pain in the Upper Abdomen. By Judson Daland, M. D., Philadelphia (Jour. Amer. Med. Assoc., 1912, LVIII, 1002).

Medical News

The Fritz Schaudinn Medal for noteworthy contributions in the domain of microbiology, awarded by an international commission, has been granted for 1912 to Carlos Chagas, of the Oswaldo Cruz Institute, Rio de Janeiro, Brazil.

The Student Volunteer Movement for Foreign Missions has made announcement of positions in Ceylon, Turkey, India and Korea for trained nurses and women physicians. Inquiries may be addressed to Mr. Wilbert B. Smith, 125 East 25th Street, New York City.

The University of Cincinnati has made arrangements whereby junior students in the medical department will receive a thirty-two day field and laboratory course in the work which is under the control of the Board of Health.

W. T. Sedgwick, of Boston, delivered a public address on "Public Health and Sanitation" at Oberlin, December 6.

W. B. Saunders Company, medical publishers, announce that they are now established in their new building on West Washington Square, Philadelphia.

County Medical Society Meetings—Geauga County, at Burton, Nov. 14. The following officers were elected: President, O. A. Hopkins, of Middlefield; secretary-treasurer, Isa Teed-Cramton, of Burton.—Crawford County, at Galion, Nov. 21. Officers were elected as follows. President, W. H. Guiss; vice president, E. R. Schoolfield; secretary-treasurer, Lucia Kemp.—Williams County, at Montpelier, Nov. 22. The following officers were elected: President, J. A. Weitz, of Montpelier; vice president, F. E. Solier, of Bryan; secretary-treasurer, D. S. Burns, of Bryan.—Licking County, at Newark, Nov. 29. John Dudley Dunham, of Columbus, read a paper on "Motor Insufficiency of the Stomach."—Stark County, at Canton, Nov. 29. J. B. Dougherty read a paper on "Early Signs and Treatment of Failing Circulation."—Auglaize County, at Wapakoneta, Nov. 21. In a symposium on the tonsils, papers were read by C. C. Berlin, of Wapakoneta, and W. B. Van Note, of Lima.—Lake County, at Painesville, Dec. 2. W. T. Corlett, of Cleveland, was the speaker of the evening.—Auglaize County, at St. Marys, Dec. 2. The meeting was a public one devoted to social hygiene. George Booth, of Toledo, read a paper on the "Prevention of Blindness," and C. M. Harpster, of Toledo, one on "Social Hygiene."—Pike County, at Waverly, Dec. 2. The following officers were elected: President, L. E. Wills; vice president, J. L. Caldwell; secretary-treasurer, E. M. Dixon.—Athens County, at Athens, Dec. 3. Officers were elected as follows: President, J. M. Hyde, of Nelsonville; vice president, S. E. G. Pedigo, of New Marshfield; secretary-treasurer, T. A. Copeland, of Athens.—Summit County, at Akron, Dec. 3. H. S. Davidson reported a case of scarlet fever in a mother and her newborn child and C. J. Case read a paper on "Backache." The following officers were elected. President, G. M. Logan; vice president, D. H. Morgan; secretary, A. S. McCormick; Treasurer, H. C. Theiss.—Trumbull County, at Warren, Dec. 2. The society was addressed by David Marine, of Cleveland.—Allen County, at Lima, Dec. 4, the address being by C. A. L. Reed, of Cincinnati.—Hancock County, at Findlay, Dec. 5. The election of officers resulted as follows: President, T. S. Wilson; vice president, E. J. Thomas; secretary, Nelia B. Kennedy; treasurer, J. P. Barker.—Delaware County, at Delaware, Dec. 5. J. H. Miller, the retiring president, spoke of "The Regular Physician as a Servant of the People." Wells Teachnor, of Columbus, Tenth District Counselor, also addressed the society. W. F. Crickard was elected president.

The Lakeside Hospital Medical Society held its sixty-third regular meeting, Wednesday, November 27. The program was as follows: Presentation of a Case of Fractured Acetabulum, by J. J. Tyler. Presentation of a Case of Addison's Disease, by F. L. Gilcreest. Presentation of a Case of Abscess of the Broad Ligament, by W. D. Fullerton. Presentation of a Case of Congenital Leutic Transverse Myelitis, by J. E. Gammon. Complement Deviation Test for Internal Secretion of Corpora Lutea, by J. T. Smith.

Ill and Injured.—L. F. Roush, of Pomeroy, was injured by a fall from a streetcar.—E. F. McKinney, of Doylestown, was operated for appendicitis at the Lakeside Hospital, Cleveland.—L. S. Lane, of Plain City, is reported recovering from an attack of appendicitis.—J. W. Piper, of Bethesda, has been ill with pneumonia.—J. M. Hoskins, of Marion, was accidentally shot while hunting.—C. J. Dillon, of Newark, has gone to Arkansas for the winter because of tuberculosis.

Personal.—A. F. House has retired as chief surgeon and chief of staff of the St. Clair Hospital, Cleveland, and has gone to Los Angeles for the winter.—R. A. Gowdy, of New Comerstown, has been appointed surgeon of the Pennsylvania Railroad.—G. O. Maskey, of Upper Sandusky, has been made surgeon for the Hocking Valley Railroad.—W. A. Young, of Newport, Kentucky, has been appointed chief surgeon to the Cincinnati division of the C. & O. Railroad, with headquarters in Cincinnati.

Removals.—G. R. French, from Garrettsville to Orrville.—C. H. Bumgardner, from Selma to Jeffersonville.—R. W. Adkins, from Columbus to Warren.—William Teegarden, from Columbus to Marysville.—G. F. Webb, from Ashtabula to Chicago Junction.—R. P. Langel, from Neptune to Celina.—Harold Mouser, from Oakwood to Marion.—J. B. Lucas has located at Hopedale.—S. U. Siron, of Cleveland, has located at Sebring.

D. K. White, practice limited to urology and diseases of the skin, has opened offices at 302 Osborn Building, Cleveland.

Illegal Practice.—Patrick Holland, Cleveland, was fined \$200 for practicing medicine under the self-conferred title of "N. D.", "Nature Doctor."—H. J. Schireson, of Pittsburgh, driven from Cleveland a year ago, has been sentenced to ten months in the penitentiary.

Small-pox is reported from Zanesville, Rocky River and the Toledo State Hospital.

Typhoid Vaccine is being furnished by the State Board of Health.

Deaths

Oliver W. Bean, Eclectic Medical Institute, Cincinnati, 1877; of Sheakleyville; died October 29, from heart disease, aged 62.

Calvin P. McAdoo, of Bremen, died October 11, from tuberculosis of the lungs, aged 66.

John W. Barry, Eclectic Medical Institute, Cincinnati, 1905; of Cincinnati; died November 25, aged 31.

James Wilson Williams, University of Michigan, 1865; of Chesterville; died suddenly November 17, from cerebral hemorrhage, aged 72.

Carlisle Milton Southard, Starling Medical College, Columbus, 1902; of Zanesville; died November 22, from heart disease, aged 37.

Parks Rex, Western Reserve University, 1878; a prominent physician and lodge member of Wellsville; died November 18, from nephritis, aged 63.

William Ross Bustard, Cleveland College of Physicians and Surgeons, 1901; of College Point, New York; formerly of Amherst; died November 17, aged 44.

William Minser, Cincinnati College of Medicine and Surgery, 1882; of Versailles; died suddenly November 30, aged 65.

Joseph McCann, Starling Medical College, Columbus; of Delaware; retired since 1904; died December 1, from injuries due to a fall sustained ten days before his death, aged 88.

James H. Davis, Pulte Medical College, Cincinnati, 1888; of Wilmington; died suddenly November 31, at Titusville, California, where he had gone for his health.

William Wallace Holliday, Western Reserve University, 1876; of Cleveland; died December 7 in the Lakeside Hospital following an operation, aged 61.

JAN 8 1915

BRARY

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